

SEPTEMBER
1955

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AMATEUR RADIO

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

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EDITORIAL**"Who are the Authorities Fooling on Amateur TV?"**

Over nine years ago the Wireless Institute of Australia, through its Federal Executive, made its initial application to the Postmaster-General's Department for the introduction of licenses for the Australian Amateur Service to participate in experimental Television (A5) transmissions. Since that date exactly thirty-five letters apropos of this matter have passed between the W.I.A. and various Authorities and still there are no Amateur Television licenses.

Why such a license could not have been introduced under Section 103 of the Australian Broadcasting Act at that time when frequencies were being released by the Armed Forces and the respective bands reallocated to the Amateur Service is a mystery. But the then Parliamentary Standing Committee on Broadcasting (later replaced by the Australian Broadcasting Control Board) and the Postmaster-General's Department, Wireless Branch, both in vacillating mood, informed the Institute "that the matter would receive consideration."

The matter is still receiving consideration in 1955!

In 1949 the then Postmaster-General, Senator D. Cameron, said, "... that the Government is awaiting reports from the Post Office and the Australian Broadcasting Control Board before reaching a decision concerning the introduction of a Television system in accordance with standards best suited to Australian conditions..." and went on to say "Until the Government policy has been determined, the matter of granting permits for aerially radiated Television or experimental Television transmissions will be deferred..."

Despite the Institute's pleas that this concerned Commercial Television Services and should not debar the Amateur Service from its purely experimental approach to this field, no licenses were forthcoming. Today the country is faced with an acute shortage of technicians to conduct the imminent Television Services, yet the Postmaster-General's Department and the Australian Broadcasting Control Board did not appreciate that fact when the Institute told them years ago that the introduction of Amateur Television licenses would provide a ready pool of men with valuable experimental and theoretical knowledge of Television.

And so the unhappy story goes on! Year after year the Institute advanced reasons for the introduction of licenses, only to be put off by officialdom with one excuse after another, but always ending with "... the Institute's request will receive consideration..."

In 1950 the Australian Broadcasting Control Board said that "... when the Australian Broadcasting Act is being amended to give effect to the recent decision of the Government in respect to Television, the views of your Institute will receive careful consideration..." Later the Institute was informed that the introduction of Television had nothing to do with the Australian Broadcasting Act but came under the Television Act. Perusal of this indicated nothing relating to Amateur Television—only Commercial Television.

Then came more negotiations and correspondence: the Institute was notified that a Royal Commission on Television would be held, after which the Government would determine its policy! And so the Institute represented itself before the Royal Commission and was promptly told that the matter it desired to discuss "did not come within the terms of reference of the Commission..." The Royal Commission tabled its findings before the Government, the Government decided its policy, licenses have now been issued to the Commercial and Government networks and the stage is set for the introduction of Television Services next year. And what of the Amateur? Exactly the same as pertained in 1949! Postmaster-General, Hon. H. L. Anthony, M.H.R., is at present discussing the matter—for the third time—with the Director-General of Posts and Telegraphs. He has said that "certain investigations" have been made but it is necessary to make further investigations, after which the Institute can expect a reply to its representations.

Who is fooling who? Why can't the Amateur of Australia experiment with Television (A5) transmissions as all other large Amateur-populated countries have permitted their Amateurs to do for years past? What is the real reason behind all these years of "begging the issue"? Can we now say that the introduction of Amateur Television licenses is imminent?

FEDERAL EXECUTIVE

WHO WILL BE ON THE AIR WHEN TV AND TVI IS ON?

BY H. F. RUCKERT, VK2AOU

WHAT TV MEANS TO THE RADIO AMATEUR

T.v. means not only a new and modern method of entertainment or application of electronics for us in this country, but also problems to overcome. Those of us who have read "QST" or other foreign Short Wave Amateur magazines during the past ten years may know that t.v. has been the greatest and most dangerous threat to Amateur Radio the OM ever had to face. The one-eyed monster in the lounge room of our neighbour and in our own house will force us off the air as long as our transmission is causing interference to the t.v. reception—we can be absolutely sure about this fact. Our spare time, entertainment and private studies, sometimes called hobby, are a matter of modern technique.

The t.v. problem is a technical one and therefore we Amateurs should be able to solve it using modern electronic methods. We would soon loose every right, privilege and chance to continue as Radio Amateurs if we put the head into the sand. If we go into retreat, not transmitting when t.v. programmes are on, we soon will see that the t.v. show is always on the air when we have time for QSOs or the DX is coming through. Other frequency hungry institutions are only waiting for this to happen, hoping we are not keen enough to improve our transmitters and to fight for what generations of Amateurs preserved or gained for us. Some people may hope that we might prefer the lazy way of sitting in front of the t.v. set watching the advertisements, not having the knowledge or technical experience of tackling modern electronic problems.

We have already been accused of not using the short wave bands to such a degree that these bands can be reserved for Amateurs much longer. The same official voices have apparently forgotten to say also that commercial stations have not been using the higher frequency bands because even their kw's and big aerials need sun activity to get to the other side of oceans. But this shows only that any weapon may be used one day to silence Amateurs, and t.v. and t.v. will hit us hard. It must definitely will silence all those transmitters which are not up to the t.v.-age-standard as far as circuitry and construction is concerned.

To save Amateur Radio in this country it is of national importance to be able to offer the government our services as emergency or civil defence operators, as trained self educated radio operators and as experienced radio technicians the electronic industry can use without having to pay for our training or home studies.

It will not be easy for them to find the technicians to install and service the t.v. sets they will sell. Many Amateurs with their experience will be

engaged soon in this field, so we should co-operate with our greatest counterpart! Actually we only have to build and operate our radio station up to modern standards, which is not too much to ask. We should have done this much earlier anyhow, shouldn't we? The P.M.G.'s Department, which is judging our work, would appreciate this.

It is time to start now, before DX gets better, so making it heart-breaking to pull the old tx to pieces. Having done this, we will see that t.v. is not a hazard to Amateur Radio, but it will be very beneficial for us. There will be far less interference on our receivers.

Neither the Government nor electrical appliance manufacturers have been very concerned about the interference we have on short waves from motor car ignition, from fluorescent lights, frams, from dozens of automatic switches and temperature control systems, from faulty power lines and insulators, and many other man-made sparks, not forgetting the lawn mowers, drills and saws in back yards and workshops. Of course there will be a tough law to protect the t.v. set owner soon because t.v. advertising is a big business affair unlike Amateur Radio.

Will the electronic industry and the retailers co-operate with us as is the practice in U.S.A. where they install a filter in the t.v. set in those cases where the fundamental of an Amateur transmitter is blocking the t.v. mixer due to bad t.v. set design and insufficient front-end selectivity? It is not the job of the Amateur to re-build or improve the t.v. set, he has enough to do with his own gear.

The Amateur on the other hand should not think that the efforts of the President of his W.I.A. Division, the Council, or the T.v.I.-B.C.I. Committee of his town can do the job alone. We also should not rely on t.v. filters we may try when we are getting into trouble. It is still the individual Amateur who has to do the job of modernising his transmitter. The T.v.I. Committee may advise if the standard methods we describe now have failed.

CHECKING HARMONIC RADIATION FROM AMATEUR TRANSMITTERS

Many with receivers able to receive on frequencies where they may radiate harmonics, will get a big surprise if they try it out. It is correct that there was not much DX on Amateur bands higher than 14 Mc. in recent years, but it is unfortunately wrong that no Amateur signals have been on 21, 28, 42 Mc. and higher harmonics.

If you hear a strong local station on 14 Mc. with S9 plus signal, make it a habit to tune for his harmonics and send him a QSL. At first he may be embarrassed, and send you one too, but you both should be grateful for the information. It is much better a fellow Amateur makes you wake up than the Wireless Inspector with the patrol car

at your front gate, or a neighbour knocking at your door. You may prefer this QSL to a P.M.G. report.

Ask your local Amateur neighbours, especially those not more than a mile away, to check on your possible harmonics. This would be also a very gratifying job for the s.w.l.'s who are getting organised in several States. There would be an excellent chance for co-operation between you, the 14 Mc. DX hunter, and the v.h.f. Amateur who may have been worried about your harmonics on 6 and 2 mX for so long. He has the receiver you may not have.

You will hear stations half to two miles away which still have an S9 plus 30 db. signal on 28 and 42 Mc., the second and third harmonic of their 14 Mc. transmission. There is no doubt that they will put a very nice signal in on many t.v. channels. They may not believe this until you can demonstrate this to them.

A very extraordinary case was a VK2 station working on 7.1 Mc. whose second harmonic was S6 on 14.2 Mc. at ten miles distance. The fundamental signal was only 100 times stronger. It is evident that such a station is wasting a lot of the precious 100 watts he can use. We actually could make use of this position because there is often bad local QRM on 7 Mc. during the VK2WI broadcast from lawn mowers, whilst we may receive a strong and clean signal on a harmonic.

Let's all go v.h.f. and chase our harmonics! You will be shocked how few stations are OK and fit for the t.v. battle. As many as possible must be ready before the first t.v. transmitter gets on the air, so we can't be blamed for all the t.v. reception trouble and it will not be forgotten that we are still interested in all our Amateur band frequencies.

SIGNAL AND NOISE LEVEL

It is usually agreed upon that the noise level in a densely populated community will not be less than 10 microvolts. We can only expect a good t.v. picture if the picture signal is 100 times stronger than the local noise level, that is 1 millivolt. For satisfactory sound reception, the ratio could be smaller (10:1).

If we are at a location where all t.v. transmitters are delivering a stronger signal to the t.v. receiver aerial we may be allowed to generate stronger harmonics than 10 microvolts, which is about a S8 signal.

We will use for our following discussion the values published in the A.R.R.L. Handbook, or as they are used by the well known Collins Radio Co. for S meter calibrations. S9 is equal to 100 microvolts at the 70 ohm terminated signal generator cable. 6 db. or a voltage ratio of 1:2 is used to get the smaller S unit values. It may be mentioned that 20 db. is equal to a 1:10 voltage ratio.

* 35 Berrille Road, Beverly Hills, N.S.W.

TESTS IN THE BACK YARD

We should find out how much trouble we cause to our neighbours and vice versa if we do not already know about the b.c.l. Set up a short wave receiver in the back yard about 60 feet away from the shack and connect the receiver to the lawn mower cable if you don't have a battery operated set.

The first surprise will be that you can hear quite well the harmonics the oscillator of our neighbour's radio set is radiating if you move with the test aerial close to his house. This proves that his receiver causes most of the b.c.l. even our harmonic radiation free transmitter will get blamed for.

What about the radiation of his v.h.f. oscillator and the electronic high tension power supply his t.v. set will produce? You will need this test to defend you later.

The next discovery will be that you can hear at S3 or S4 the second harmonic of the oscillator of a second short wave receiver which is in the shack despite the good shielding and bypassing. The frequency meter you used to check the accuracy of the transmitter emission could be so strong that this may cause t.v.i. too. Disconnecting the test aerial used on the receiver in the back yard with the transmitter on will show how much of the r.f. is getting through the mains. Your neighbour will get interference via the same channel unless you stop the r.f. from going this wrong way.

NOW LET US TEST OUR TRANSMITTER

Connect a shielded dummy load to the antenna terminals. A 75 watt globe should be enough if you use 100 watt input. Switch the oscillator on. Use full receiver sensitivity and a short testing aerial about three feet long. So far in the back yard you should not hear much more than you got before from receiver oscillators or frequency meter. Now connect or plug in the isolator stage valves or frequency multiplier stages one by one and check the fundamental, second and third harmonic. You will soon find out which stage is not shielded enough and which stage is generating objectionably strong harmonics. You also will see that single ended stages, not push pull stages, are generating often a stronger third harmonic than second harmonic. So a push pull stage may not be of any advantage.

If now the switched on final makes it much worse, then you know that a low-pass antenna filter will not help you and a mains line filter will be just as useless, because your transmitter chassis is still r.f.-hot, making shielding ineffective, even if you do not burn your hands when you touch it.

The next test series can be made with the transmitter at full power, modulated by a watch, and any aerial available may be connected. Reduce the sensitivity of the receiver in the back yard by standard methods (r.f. stage cathode resistor) or use a still smaller test aerial. Set the receiver so that the S meter reads as high as S9 plus 40 db. (10 millivolts), if your S meter is able to follow such an input signal on the fundamental transmitter frequency. Check over the whole band for splatter—this will tell you how much trouble you cause to neighbouring Amateurs, and

how much energy is wasted and scattered. You may be surprised how low the average modulation percentage is if you work without splatter on peaks with 6-8 Kc. bandwidth, unless you use a clipper filter arrangement.

Now tune to harmonics at 28, 42 Mc. and higher if you are lucky enough to have a receiver which does so. If your S meter still reads a signal on harmonics or if you can copy these without using the b.f.o., you will be in t.v.i. trouble. With full receiver sensitivity and a higher antenna which is tuned to v.h.f. you will still have harmonics of S9 or more.

Without mains line and antenna filters you can get a ratio of harmonics to fundamental voltage of 1:100,000 (S1-S9 plus 40 db.). Only when this is achieved can you hope that a mains line filter and a good antenna low-pass filter will make your transmitter so free from harmonic radiation that you can't be blamed for t.v.i. If the same operators were given a 500 watt or one kw. licence, they would still cause far less b.c.l. or t.v.i. than a transmitter of the old fashioned design without shielding, using a 6L6 c.o., 807 doubler with capacitive coupling to the final 100TH, which is doubling also, using a window antenna directly capacitive coupled to the tank circuit. Such a transmitter will not have a better suppression of harmonics than 100:1.

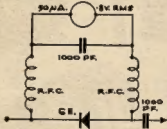


Fig. 1—R.F. Sonde Circuit.

ANTENNAE AND TVI

You will soon see, making these tests, that flat line feeders radiate far less energy inside the shack to other gear and mains cables than single wire feeders. Far better again is co-ax cable. Quite successful was a piece of double co-ax 70 ohm inside the shack and outside 70 ohm twin lead cable, if you can't afford 80 ft. of co-ax or so for the whole feeder. The a.w.r. remained the same, but there was a marked improvement as far as harmonic radiation was concerned.

Antennae which are tuned and matched to a certain band will help reduce harmonics which may still get out from the final. The length and type of earth cable connected to the transmitter chassis also makes quite a big difference. A test may show the best spot on the transmitter chassis to connect it.

CHASING HARMONICS AROUND THE PLACE

The tests in the back yard have shown which stages generate too much harmonic energy. Most helpful is a g.d. meter to chase components and leads which may be tuned to the discovered

harmonic without being determined to act as tuned circuits for the particular frequency. You can make amazing discoveries in this way, and some cases reported in "QST" are almost fantastic.

Even more helpful in tracing insufficient shielding, wrong by-passing and wrongly placed chassis connections is a small r.f. indicator (sonde) made with a 50 microamp. meter, a G.E. diode and a few other components.

With the transmitter on, walking with the sonde through the shack and house, touching any metallic objects with the sonde, you will be amazed to learn where the energy from your transmitter goes. You soon realise why others get that rare DX station you call because your transmitter is warming up the kitchen sink as well as the gas stove.

The mains connections direct at the transmitter may be r.f. cold, but it may be different at a point three wave lengths away where your neighbour connects his b.c. or t.v. set. You can be sure to find the same trouble in your own place also. The mains are metallic objects in the house should be free of r.f. if a shielded dummy load is used, but with the aerial connected to the transmitter we always can expect some r.f. all over the place between ground and radiator.

What if your transmitter is finally free of harmonic radiation, but a gutter and down pipe, the steel kitchen sink and a copper pipe, installations with rusty connections to the gas stove or frig. are just half a wave length long on a harmonic which falls in a t.v. channel? The bad connections of different metals may be just near the middle of this dipole forming a non-linear device, causing distortion (rectification) to the received r.f. energy, and so generating harmonics which are re-radiated by the unusual dipole with more or less efficiency. With your sonde you can find out if certain parts of the house carry r.f. and the locating of trouble spots may be possible.

LOOKING INTO THE TRANSMITTER

With the same sonde we can check the different chassis our transmitter may have. We may find r.f. around the driver stage and on that part of the front panel. The reason being that it was wrong to connect the cathode of the valve, the coil of the tank and the tank capacitor to three different places and positions of the chassis so that the chassis was a part of the path for the r.f. plate current and a part of the tank coil inductance. Re-arranging of parts and wiring with copper foil strips, to reduce inductivity, fixed the trouble.

In a different chassis we find r.f. on the panel and shielding plates which should divide the chassis into different compartments. Covering the compartments with aluminium sheet or copper fly screen wire mesh helps in this case, because the coil in one of the open boxes, i.e. not closed on the top, acts as a secondary coil winding. Wire mesh is quite effective if connections are made every two inches to the chassis.

Slots or bad contacts along shields are also detected by the sonde. There may still be r.f. around a knob with which we operate the coupling capacitor which is in series with the link coupling coil coming from the co-ax output of the pi filter. R.f. is radiated from here by-

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passing any low-pass filter in the aerial. The chassis is hot, not permitting effective shielding for a mains line filter, and r.f. is therefore by-passing this filter, too. Looking inside the chassis of the final shows immediately the trouble-causing component. This coupling capacitor has r.f. on stator and rotor, the spindle is not insulated from the capacitor but only from the chassis. The short piece of the $\frac{1}{2}$ " spindle goes insulated through a $\frac{1}{2}$ " hole in the panel. This spindle acts like an aerial around which we place a wire ring. Both parts form an r.f. transformer. It was very easy to mount the capacitor 2" further back and put a short piece of insulating material through the front panel.

After the author had fixed the above-mentioned design errors the reduction of harmonic radiation was 100 times better as a further test in the back yard showed.

EFFECTIVE BY-PASSING

The old school of thought was that the bigger the by-pass capacitor the better. A good lesson was the description of tests in "QST" and similar but more extensive measurements have been carried out by VK2AZB and the author.

Talking about short waves and t.v. frequencies we can say that the most effective by-passing is achieved if we tune the by-pass capacitor with attached leads to the frequency we wish to by-pass. It is useless to take a bigger capacity value with lead lengths which will resonate at a much lower frequency than we wish to by-pass, because the effective capacity is reduced by the inductance of the capacitor leads and the self inductance of the capacitor. These inductances make the capacitor act like a choke causing so much more trouble. If the self resonance is higher than the operating frequency the by-pass capacitor has a good chance of being most effective at or near an undesired harmonic and it will act as a capacitor for all lower frequencies.

The A.R.R.L. found the following t.v. harmonic trap most effective. Parallel to a bunch of pi filter output capacitors of 500-1500 pF. was a small capacitor and one lead was wound into a small coil tuned to a v.h.f. frequency. Also parallel to this series resonance wave trap was the antenna feeder co-ax cable.

Soldering our by-pass capacitors parallel to a piece of copper of a few square inches we can easily find the resonance frequencies with the grid dip meter. Using for example a ceramic HK disc type capacitor which can have for similar capacity values different types of dielectrics, depending on the chemical composition of the material, we can give this series tuned circuit just enough power factor to be broad enough tuned to cover one or the other Amateur bands. Mica or low loss capacitors are not so suitable in this particular case, whilst paper capacitors have too high a power factor. A $\frac{1}{2}$ " diameter ceramic HK disc type capacitor of 100-1000 pF. may do the by-pass job much better than the old 0.1 uF. paper tubular condenser with its 1 Mc. self resonance frequency, and even a 0.01 uF. ceramic disc with the resonance frequency of 20 to 8 Mc. may be the wrong thing.

If you can't avoid long leads, use copper foil half an inch wide. The same

applies to by-pass capacitors which have a twice higher self resonance frequency if you replace the two $\frac{1}{2}$ " long wire leads by $\frac{1}{4}$ " wide copper foil strips.

The g.d. meter shows you where you are with your by-pass capacitors, and the sonde will tell you how effective they are. A $\frac{1}{4}$ " of wire is equal to 10 cm. inductivity or 0.010 uH. inductance.

A TRANSMITTER CIRCUIT OF LOW HARMONIC GENERATION

Having followed the description of tests so far it is easy to understand that we should start with a circuit which is unlikely to run into much trouble at all. The remaining radiation of harmonics may then be very much easier to cure or to confine to transmitter stages where they can't do much harm.

- Don't operate oscillator or frequency multiplier stages with more than 2-3 watts input, to keep the energy of generated harmonics as low as possible.

- Omit capacitive coupling between the stages, because that is the way harmonics escape.

- Use band-filters in between the frequency multiplier stages and inductive coupling with link and co-ax cable to the driver stage.

- Use a well screened pentode as driver stage, with good shielding between input and output circuit.

- Never use the driver or final stage as frequency multiplier, they should act as harmonic filter stages.

- Use pi tank circuits because they provide a by-passing of harmonics with the filter output capacitor being parallel to the co-ax which leads to the low-pass filter.

- The low power frequency multipliers make it a must to use modern tetrodes or pentodes for the driver and final. Their internal shielding is very helpful in isolating the transmitter from the aerial as far as undesired frequencies are concerned. Also neutralisation may then not be necessary.

- Use an antenna coupler following the tank and low-pass filter with inductive coupling.

- Cover the instrument holes in the chassis with tins (surplus from the XYL's kitchen) for screening.

- Use only co-ax cable and shielded hook-up wire for all wiring in the transmitter (at least in stages and chassis where r.f. or a.f. may be). It saves you the time-consuming tracing of r.f. in modulators and power supplies later.

- Use wire mesh for the back of the transmitter to get the required shielding and necessary ventilation.

- Use band switching throughout so that you don't have to unscrew the shielding to change coils, etc.

- It is advisable to use shielded cables for the key, mike, monitor, etc., and co-ax feed-through capacitors are often the only way to get effective by-passing.

You will find in "QST" and Phil Rand's publication further important information about sources of t.v. and methods of curing it. The A.R.R.L., the T.V. Committees, especially in Dallas, Texas, and many single Amateurs did a

Frequency Channels for Television Stations

The Postmaster-General (Hon. H. L. Anthony, M.P.) recently announced that the Australian Broadcasting Control Board had allocated frequency channels as indicated hereunder to the television stations which in accordance with the Government's approval, are to be established in Sydney and Melbourne:—

Channel No. 2, 63-70 Mc.: National television stations—Sydney and Melbourne.

Channel No. 7, 181-188 Mc.: Commercial television stations to be operated in Sydney by Amalgamated Television Services Pty. Ltd., and in Melbourne by a company to be formed by the Herald and Weekly Times Ltd.

Channel No. 9, 195-202 Mc.: Commercial television stations to be operated in Sydney by Television Corporation Ltd., and in Melbourne by General Television Corporation Pty. Ltd.

The Board has also determined that each of the stations will be authorised to use up to 100 kilowatts effective radiated power, that the Sydney transmitters should be located in the Gore Hill district, and the Melbourne transmitters on Mount Dandenong.

W.E.A. CERTIFICATE CANCELLED

The Radio Society of East Africa has announced that the issue of the Worked East Africa (W.E.A.) Certificate has been suspended indefinitely and no further applications can be considered. Outstanding claims will be dealt with in due course. The Society hopes to issue a new certificate shortly.

very excellent job in demonstrating to the W. Amateurs, industry and radio trade representatives how to t.v. proof transmitters—both home-built and commercial—putting 1,000's of Ws again back on the air.

"T.v.i. suppressed" is the most important sales feature the commercial built transmitter must have in U.S.A. now. Even the Hallicrafters transmitters used for the Clipperton Island adventure had been t.v.i. suppressed.

This problem concerns also the v.h.f. Amateurs because they will not have, for very long, the chance to shift or escape to higher ground (frequencies). Colour T.V. will find us even at 280 Mc. or 580 Mc.

A further article will describe a transmitter with the above mentioned constructional features, a later still will describe the calculation and tuning of a low-pass filter.

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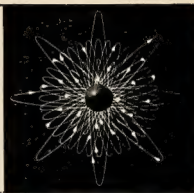
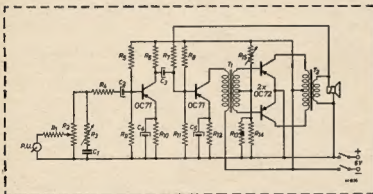
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PVL55

7 Mc. MOBILE CONVERTER

BY R. S. FISHER,* VK3OM

WITH mobile operation becoming more popular on the lower frequency bands, the author feels that the description of a sensitive and stable converter for use on the 40 metre band will be of considerable interest.

As it is crystal controlled, it offers many advantages over the usual tuned type. Firstly, the stability is determined by the broadcast receiver with which it is used. Secondly, all tuning is done on the broadcast receiver dial. This means that the converter can be placed in any convenient position in the car, such as under the dash or in the glove box.

The converter uses a crystal at 6.2 megacycles. This means that the 40 metre band is covered by tuning the broadcast receiver from 800 to 950 Kc. A crystal of another frequency can be used, providing the difference between it and the 7 megacycle band is within the tuning range of the broadcast receiver. The crystal used by the writer was obtained from a 5-7 megacycle Command transmitter.

by one American commercially made converter. A tuned output was not considered necessary.

With the 7,500 ohm resistor in series with the high tension line, the current drain with a 200-250 volt supply will run about 10 milliamperes, which should be well within the capabilities of any standard car radio.

The converter should be built into a small metal box that will fit into the space available. It is most important that the whole thing is well shielded and all leads running to the converter (including the power leads) should be completely shielded.

The actual construction is left to the reader. The whole thing can be made quite small and a size of about 3 x 4 x 5 inches is suggested. The writer constructed his unit in a small disposals beacon receiver box, of about this size.

Initial lining up of the converter should be done on a receiver with an S meter. Firstly, peak C1 on a strong signal and then adjust L2 and L3 on

A Circuit to Measure Capacity & Inductance

BY N. E. DILLEY,*

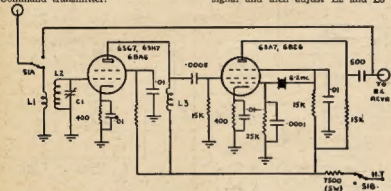
The writer has enjoyed reading the issues of "Amateur Radio" that he has received in the States. It is apparent that the boys "down under" are having a lot of fun from their hobby.

In order to help round out the measurements side of Amateur Radio, the following circuit is submitted to the readers of "Amateur Radio."

Those Amateurs who have a supply of crystals and some standard condensers can measure inductance with good accuracy with it. The circuit is shown in the following schematic.

The circuit is quiescent until the tank is tuned to the same frequency as the crystal when oscillation takes place. The grid current is adjusted for a maximum with the variable condenser (the range of which will determine the range of inductance that can be measured with one crystal). The inductance is found from the formula for the resonant frequency of a parallel tank circuit given the frequency and the capacity. A nomograph relating L, C and frequency will save computation.

For those Amateurs with surplus or able to get surplus gear, it will be stated that the GP-7 Aircraft Tuning Unit has a variable condenser in the range of 20-180 pF. that is quite linear. The dial divisions break down to about five divisions per 1 pF, which is handy for reading. The TSB Tuning Unit of the BC191 (B24 Liaison Transmitter) has several calibrated fixed condensers handy for calibration of another variable condenser.



A glance at the circuit diagram will show that it is of straight-forward design. The aerial coil is wound on a slug-tuned former 3/8ths inch in diameter. L1 is ten turns, L2 is 40 turns. All coils are wound with 30 gauge cotton covered wire, close wound. The grid condenser C1, which has a maximum capacity of 30 pF, can be brought out to the front panel if need be, but this is not really necessary as the tuning will hold across the band.

The r.f. stage uses a 65G7, 65H7, or a 6BA6. Any of these tubes will work with equal results. The r.f. stage is coupled to the mixer via L3 which is also wound on a 3/8ths inch slug-tuned former and consists of 45 turns. Make sure that the coil is well separated from the aerial coil.

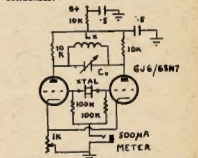
The mixer uses a 6SA7 or a 6BE6. A hexode triode can be used with some slight modification to the circuit. The output of the mixer is resistance capacity coupled to the broadcast receiver via a short length of co-axial cable. This type of coupling is quite satisfactory in its operation and is, in fact, used

a steady signal, or use a signal generator. The next step is to connect the converter to the receiver with which it will be used. Connect the antenna, peak the aerial trimmer C1 again and then peak the aerial trimmer of the broadcaster receiver and the job is done.

With regard to the antenna, various types of loaded whips used for transmitting may be used with excellent results, however the standard broadcast whip can be used providing it is at least four feet long. The writer uses his converter in this method and results have been more than satisfactory.

Ignition interference may cause a prospective builder some worry, however in most cases it is very easy to clear up. Usually all that is needed is a suppressor in the lead from the coil to the distributor and perhaps a suppressor on each spark plug. If this does not bring it down to a low level, bond the bonnet and fire wall to the chassis, also a 0.5 uF. condenser from the battery terminal of coil to earth will help.

However, if any trouble is experienced in this matter the writer will be pleased to answer any queries.



Operation of the circuit is quite instructive and one can easily note how the capacity changes on the high side of resonance changes the frequency much faster than on the low side of resonance. The tank response can be noted for it is the tank Q which determines the oscillation range as the crystal Q is much greater.

If two tube sockets are wired in the set one can determine the tube insertion capacity by tuning to a peak of grid current with both tubes inserted and then withdrawing one. The amount of capacity that needs to be added will be the capacity associated with one tube and would need to be added to condenser capacity for the true amount of capacity.

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A Triple Conversion Amateur Band Receiver

BY DON B. KNOCK* (VK2NO), M.L.R.E. Aust.

IT was an article in England's "Short Wave Magazine," by G2IQ, in the issue for August, 1947, on "Amateur Band Receiver Design" that really started this thing off—this quest for appropriate selectivity, plus stability. G2IQ's 110 Kc. i.f. assembly prompted a similar set-up, and this, with a 175 Kc. i.f. channel, was a revelation when used in this "built-up" Amateur area. The receiver then constructed turned out to be a massive affair, as ex-Navy coil turners—those 7 or 8 inch diameter moulded bakelite affairs—were adapted for use in the front end. The final creation was a rack and panel arrangement about as large as the wartime Kingsley AR7, complete with power supply and that was a generously proportioned structure.

The line-up was EF50 r.f. stage, mix./osc., 6U7G 1st i.f. at 1880 Kc., ECH35 crystal osc. at 2155 Kc. (a disposals crystal I had on hand), two 6U7G i.f. stages at 175 Kc., 6Q7G second detector with 1N34 noise limiter, 6V6G audio output and 6J5G beat oscillator. The voltage regulated power supply used a 5X3G rectifier with VR150/30 regulator.

This receiver, in completed form, satisfied a need long in evidence; that of more than average selectivity for 14 Mc. phone operation in particular. Despite the inherent stability of the second frequency changer, which used a Pierce type crystal oscillator, an irritating fault showed up in the front end—one of drift and frequency change. It was attributed to a number of causes, including the use of a combined frequency changer valve in the signal input. With due attention to obvious engineering practice in receiver construction, these faults could have been hunted down. The use of a separate oscillator valve with appropriate zero and negative temperature capacitors would have done the trick.

By this time, however, the writer's liking for trying anything at least once had resulted in being attracted to the use of a crystal-locked signal input circuit in conjunction with a tunable i.f. channel. The much-vaunted Collins 75A kind of receiver indicated the commercial trend and the idea was uppermost that some day something of the kind might be tackled, a sort of Chinese copy!

With the passage of time, and the inevitable acquisition of war surplus gear, came the urge to get on with the job. A further filip was provided by that excellent crystal converter article by WIDX in "QST" for December, 1948. With a lone but good 6J6 in the spare valve quota, plus a couple of 6AK5s, there seemed to be no further excuse for inaction.

THE SET-UP

Conventional chassis construction was the plan, but, like the very strong frame from a BC375E transmitter swung the vote again in favour of rack and panel assembly. Moreover, that frame only cost me 2/6 over a Sydney counter renowned for "lucky dip" bargains. So it was that the present trip

conversion receiver arrangement came into being, starting off some moons ago with a 14 Mc. crystal converter—an exact duplicate of the WIDX design. This, for the benefit of those who may not have seen it, uses a 6AK5 as a neutralised triode r.f. amplifier with a 6J6 crystal osc./triode, a 6AK5 mixer, and 6C4 cathode coupling output valve. The latter was dispensed with as not being imperative and the injection frequency broad-banded out around 1800 Kc.

The crystal used in the writer's converter is 5450 Kc. Hitched to an average receiver tuning between 2350 and 1850 Kc. for the requisite coverage of 400 Kc., the result was at once impressive. A

extra shielding seemed to have much effect, and the prospect of those intruders in the middle of "twenty" was appalling. Reluctantly, that i.f. tuner was scrapped, although more patience might have decreed otherwise.

About this time, a Short Wave Listener friend came to light with a present in the form of one of those natty little American "Command" receivers—a CBY48104—normally of not much use to a VK, covering a non-Amateur part of the h.f.s., 1.5 to 3 Mc.

Having acquired this 1.5-3 Mc. box of tricks, the thought immediately surged uppermost, what now of the 14 Mc. crystal converter? In order to put

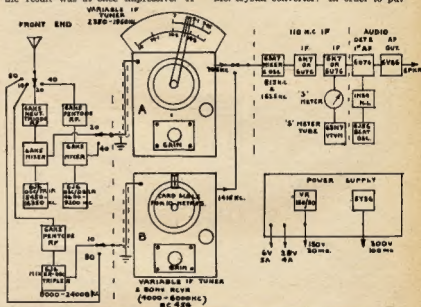


Fig. 1—Block diagram of VK2NO's Triple Conversion Receiver.

A—Command Receiver Unit CBY48104 (1.5 to 3 Mc.)

B—Command Receiver Unit BC454 (3000 to 6000 Kc.)

few "joeys" occurred until the 6AK5 triode r.f. stage in the converter was tamed, but with that done, the spurious carriers vanished.

With the 14 Mc. converter tested and accepted as a worthy keystone to better things in receivers, a move was made in the matter of low frequency i.f. channel and input tunable over a range of 2 to 4 Mc. Simple enough? Yes, but with a penalty should shielding be only partial and not completely effective. The assembly was made up with a 6SK7 r.f. stage ahead of a 6SA7 mixer/osc., followed by two 6U7Gs at 110 Kc., 6Q7 detector, 6H8 noise limiter, 6V6G audio, and 6J5 beat oscillator. A reasonable amount of care was taken with the layout and the construction, but evidently not enough. Slap around 3 Mc. on the tuner dial appeared a cluster of strong unwanted oscillator sub-harmonics and hard-to-define beats. No amount of

this into action with the least toll, a 28 volt heater transformer was made up from an old power transformer assembly, a B supply hitched on, and the little receiver connected up to the crystal converter. Presto, a nice clear 400 Kc. for 20 metres; no joeys, just Amateur signals, and everything nice and stable in the c.w. world.

However, as things stood, the i.f. channel in the CBY48104 didn't help much, being at 705 Kc., so a simple way out was then tackled. The previously scrapped i.f. tuner structure was re-built with 6SA7 frequency changer from 705 Kc., picking off the i.f. from the Command receiver 12SR7 diode plate through a 50 pf. condenser and screened lead. The 12A6 is left in position because of heater supply considerations. Followed by two stages of 110 Kc. i.f. with 6U7Gs, 6Q7G second detector/a.v.c. with 1N34 series noise limiter, 6SN7

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v.t.v.m. bridge type S meter and 6J5 beat oscillator. The result is just what the doctor ordered.

CONVERTERS

Little elaboration is needed on the construction of WDX's converter. Sufficient to say that it is employed just as described in "QST" except that the 6C4 cathode-coupled output valve is omitted, and a capacity output (50 pF.) taken from the resonant (1900 Kc.) anode circuit of the 6AK5 mixer. Another converter was made up for 40 metres; in this case using a 6AK5 r.f. stage as a pentode, 6J6 crystal osc./doubler with 4600 Kc. crystal, and a 6AK5 mixer. The anode circuit of this is fed through a 2.5 mH. r.f. choke with capacity output taken for the i.f. injection.

As the 4800 Kc. crystal provides the 150 Kc. in the (Australian) 40 metre band between 2000 and 2150 Kc., the advantage is that this is inside the Command unit tuning range already in use for 20 metres. It means that a simple modification to the dial gives a handsome amount of bandspread on 20 metres and plenty on 40 metres also, using the common scale and pointer.

COMMAND LF. TUNER DIAL MODIFICATION

By marking with a pencil on the black metal dial the limits of the 20 metre band as checked by a frequency standard, the centre line is the position at which to fix a clear perspex or celluloid pointer, $\frac{3}{4}$ " in length and about $\frac{1}{2}$ " wide. This is cemented with an adhesive such as Pibond to the dial and also pinned in position as a precaution by the use of small self-tapping screws. A piece of thick celluloid measuring $4\frac{1}{2}$ " by 3" is first frosted by rubbing with steel wool or fine grade sandpaper, and then fixed to the top edge of the Command unit panel by self-tapping screws. The calibration is done from established standards and marked in with a fine mapping pen and black drawing ink. When marking is completed, wash the surface over with artist's clear lacquer.

The effective spread on 20 metres is four inches, and on 40 metres, two inches. For illumination, two 12 volt lamps in series are fitted behind the scale.

Because a.v.c. is included in the 110 Kc. i.f. channel, no alteration was made in this respect to the Command unit.

To carry on the idea of the receiver further, a second Command unit, the BC454, which covers 3 to 6 Mc., can be added and this unit in itself will take care of 80 metre requirements. Crystal locking of a signal input tuner is not considered to be particularly advantageous for that band and so the little tuner unit can be applied in the way it was intended, but with the added advantage of "Q5er" selectivity by the conversion to the 110 Kc. i.f. channel.

To cater for 10 metres, however, we have here an ideal combination by using a converter for that band, employing a mixer-crystal osc./trippler from 8,000 Kc., so that the Command unit is then functioning for the purpose between 4 and 6 Mc. The BC454 has a different i.f. channel to the CB746104, and is at 1415 Kc., so that an alternative input circuit is needed for the 6SA7 frequency changer in the final i.f. unit.

Simple switching and the grid and oscillator sections covering the requirements takes care of this. Standard broadcast coils, tapped for cathode coupling, are added to hit 815 and 1525 Kc. respectively, with adequate shielding against direct pick-up from local broadcasters.

METER

Any of the usual signal strength meter applications can be used, but the one favoured by the writer is that diagrammed here. It has the following advantages:—

- You don't have to break into the i.f. anode circuit to insert the meter.
- The sensitivity is adjustable to suit the particular receiver to which it is adapted.
- Once the bridge is balanced, the meter seldom needs to be reset for zero or calibration.

A double triode valve is applied, and may be a 6SN7, 6SL7, 6C8C, 6F8G, or other suitable types.

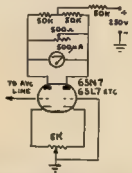


Fig. 2.—S Meter (v.t.v.m.) for Triple Conversion Receiver.

Each triode functions as a leg in the bridge in conjunction with the 50,000 ohm resistors. There is a 500 ohm variable shunt resistor across the meter, which should be of 500 microamps or less. Balance for a zero reading is adjusted by the 5,000 ohm potentiometer from cathodes to earth, and even with line voltage variation, there is rarely any need to reset this.

The grid of one triode section is earthed and the grid of the other connects to the a.v.c. line at a point where it is by-passed to earth by the a.v.c. filter condenser.

POWER SUPPLY

Power requirements call for a transformer giving h.t. at 300 volts per side at 100 Ma. or more, with 6.3 volt and 5 volt windings. If the procedure with the Command units is followed as in the original set-up, a heater transformer giving 24 to 28 volts at 3 or 4 amperes will be needed. This might just as well be the practice instead of rewiring the heaters for 12 volt operation. You would still need a 12 volt heater as an extra, and the idea of substituting 6 volt valves for the 12 volt types fitted is not a particularly good one. Why discard perfectly good 12 volt valves for 6 volt types that won't give any better performance?

Transformer manufacturers make a reasonable enough charge for making up a 28 volt filament transformer of modest current requirement. The writer has had a few made for special jobs at 28/- each, which is fair enough. Otherwise, the job is easy enough with an old transformer with a good primary thereon. Working on an average of 7 turns to the volt, it isn't much of a task to run on about 200 turns of 20 gauge enamelled copper wire.

The high voltage output from the h.t. section of the power supply unit delivers the requisite 250 volts for audio and anode feed and another output, regulated at 150 volts, by way of a VR150/30, is provided for screen and oscillator voltages.

OPERATIONAL POINTS

There is little more to be said about the receiver except to praise its functional features, it really has an excellent performance. Note that a beat oscillator is included in the 110 Kc. i.f. assembly instead of relying on earlier beat oscillator injection as provided in the Command units. It was found that the beat oscillator later in the circuit turned out to be a handy factor in the reception of single side band transmissions; it supplies the missing carrier just at an appropriate level, and with no measurable drift in the crystal-locked front end, a correction of a cycle or two is easily done by the adjustment of the 25 pF. midget variable condensers from the cathode tap on the beat oscillator grid coil to earth. The use of the beat oscillator sections in the Command units is ruled out for this purpose by the fact that where a small screwdriver adjustment hole at the side of the chassis is the modus operandi. It was not intended in these units that the beat note be touched once it is bench-adjusted.

The Command units are not provided with a.v.c. as they stand, and reliance was placed entirely on the a.v.c. provided in the 110 Kc. i.f. unit. This turned out to be adequate for the purpose and the gain control on the Command tuners can be more or less pre-adjusted to a requisite level and the required i.f. and audio gain taken care of in the i.f. section.

It is found that the Faraday shielded input to the r.f. stage in the converters on 20 and 40 metres is a real asset where a strong local station may be working in close proximity, physically and in frequency.

The band-pass provided by the two i.f. stages at 110 Kc. is as narrow as one can wish for unless one is a c.w. man exclusively, and not interested in phone. On the latter score, the effect of tuning over 20 or 40 metres with this receiver is to find sizeable gaps in between stations that definitely show overlapping and adjacent channel interference on a normal single 455 Kc. i.f. communications type receiver. Accurate measurements have not been made on the band-width of the 110 Kc. i.f., but it is between 1,500 and 2,000 cycles.

For c.w. operation the receiver is good enough to satisfy the most rabid DX contestant, with the knowledge that unless the station being received is at fault in that respect, signals don't drift even with varying line voltage. They stay put on the tuner dial. If one wishes

to go to the de luxe c.w. requirement, there is no need to include the complicated and not-altogether-satisfactory accessory of a crystal filter. Simplest way is to include an audio filter in the speaker (or headphone) leads. The Heterofol and other more recent schemes are something really worth while, when used in a receiver of this kind

There is a great deal more that could be written about this triple conversion receiver, but anything missing, such as a circuit of the converters, can be found in the pages of "QST" quoted. The general idea can be followed readily from the information given. It is indeed a pleasure to use and after a few months of so doing, on 20 metres in particular, the writer would not dream of reverting to the non-crystal controlled front end receiver for Amateur band working. It is admitted that the final contraption is

not very "commercial-looking" in appearance, but the original has been from the start a purely experimental consideration. It represents the culmination of an idea, in fact, a kind of "Paddy's market Collins outfit," if that august Corporation will pardon the liberty of reference. In any case we don't have dollars to consider otherwise!

A final word about the i.f. tuners. It is realised that in this country there have been virtually none of the Command receivers covering the 1.5 to 3 Mc. range (to say nothing of the broadcast model), but there have been quite a few of the 3 to 6 Mc and 6 to 9 Mc. models sold through dealers, etc. A little figuring will show that various crystals can be applied with these higher frequency units, but the idea of the expanded dial may not be feasible. It is easy enough, however, to make a card scale that can be cemented to the front of the existing circular metal dial, and to calibrate this as required.

Note that the circuit includes a crystal diode noise limiter in series in the 110 Kc. second detector. This can be a 1N34 (if you are lucky to have one), or the equivalent British diode made by G.E.C. and now available around the Australian radio trade.

It will be obvious that the general principle of this receiver combination is applicable only to coverage limited to the narrow frequency needs of our popular Amateur bands. It would not be a simple matter for the receiver dabbler to try to incorporate the crystal front end idea in a general coverage (communication) receiver.

BOOK REVIEW

"The Radio Amateur Operator's Handbook"

This little handbook, compiled by the staff of "The Radio Constructor" in collaboration with the International Short Wave League is a very compact summary of those charts and tables which all Amateurs and Short Wave Listeners use at some time or other.

International Amateur prefixes are listed, both alphabetically and by country. Time conversion charts, accurate frequency transmissions, "Q" code, signal reporting systems and similar information, well presented in 48 pages, make this a useful reference for both the DX old-timer and the new "Z" operator.

Our copy was received direct from the publishers, "Data," Publications of London.

DX C.C. LISTING

PHONE

Call	No. Ctr	Call	No. Ctr
VK3BZ	3 178	VK4BT	22 124
VK4BR	1 178	VK4WJ	17 122
VK4RU	2 188	VK4DO	80 116
VK4FJ	21 184	VK4JP	8 114
VK4JE	10 183	VK4MS	84 106
VK4JD	1 155	VK4CB	25 109
VK4ATN	26 183	VK4WM	29 108
VK4BS	4 156	VK4MO	25 105
VK4BK	4 156	VK4ADT	13 102
VK4LN	11 141	VK4HA	15 102
VK4WV	14 141	VK4IG	19 101
VK4WW	14 140	VK4IO	8 100
VK4JE	7 128	VK4GO	18 100
VK4WF	16 137	VK4LC	27 100
VK4DD	6 136	VK4UP	30 100

G.W.

Call	No. Ctr	Call	No. Ctr
VK3BZ	6 223	VK3FH	31 194
VK3PH	15 208	VK3JL	25 131
VK4HR	5 200	VK4RE	11 125
VK4KB	10 200	VK4HT	27 124
VK4FJ	28 191	VK3YD	37 123
VK4EL	6 175	VK3EK	3 123
VK4BY	26 175	VK3PI	36 117
VK4BY	45 172	VK3UM	12 116
VK4EO	2 170	VK4OY	44 115
VK4KX	23 159	VK4IL	24 114
VK4RU	18 156	VK4DA	7 113
VK4BO	83 187	VK4LE	17 113
VK4CN	1 151	VK4RW	47 111
VK4GW	16 151	VK4SR	42 108
VK4SA	28 150	VK4RC	13 107
VK4GL	30 148	VK4XK	41 107
VK4DO	20 144	VK4AZ	35 105
VK4KO	43 144	VK4KW	40 104
VK4VW	4 143	VK4YC	34 103
VK4GL	3 143	VK4PK	46 102
VK4XK	30 138	VK4AFA	14 101
VK4JE	21 137	VK4NC	19 101
VK4YL	59 135	VK4OGA	33 101
		VK4AK	22 100

OPEN

Call	No. Ctr	Call	No. Ctr
VK3BZ	4 331	VK4LC	55 118
VK4ACX	6 323	VK4LE	22 116
VK4HR	7 214	VK4VQ	48 116
VK4FJ	32 208	VK4SW	63 116
VK4RU	9 200	VK4RI	67 115
VK4JE	12 198	VK4JA	43 114
VK4NS	18 195	VK4ADT	14 113
VK4VG	2 188	VK4RO	28 111
VK4EL	10 175	VK4MO	49 111
VK4WV	13 171	VK4RC	31 110
VK4DI	2 170	VK4SR	84 110
VK4DO	15 168	VK4CB	46 108
VK4XK	1 187	VK4ZC	25 108
VK4KS	24 167	VK4KR	55 107
VK4RW	52 165	VK4YI	11 106
VK4GW	48 153	VK4OB	15 105
VK4AW	48 150	VK4SWN	36 105
VK4LN	11 141	VK4WT	25 104
VK4FL	26 143	VK4VN	19 104
VK4WF	40 141	VK4VP	27 104
VK4HT	41 141	VK4SP	50 104
VK4MC	39 139	VK4HZ	17 103
VK4PO	19 137	VK4TB	30 103
VK4DX	42 137	VK4TI	37 103
VK4DD	6 136	VK4YS	57 103
VK4ADE	28 133	VK4TR	31 102
VK4JI	33 131	VK4TY	21 102
VK4AIA	12 130	VK4SI	51 101
VK4AHM	20 125	VK4TG	39 100
VK4PG	47 124		



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AMATEUR CALL SIGNS

FOR MONTH OF JUNE, 1955

NEW CALL SIGNS

VK—
2DD—A. Davis-Rice, 7 Raymond Rd., Neutral Bay, Sydney
2OK—J. T. Lake (Major), 48 The Promenade, Sans Souci
2APF—F. W. Fowler, 4 Thompson Cres., Tamworth
2AUM—A. Maxwell, 24 Coleman St., Westmead
2ZAU—K. Woodward, 35 Rasmussen Ave., Castlecrag
2ZBA—J. B. Adkins, 10 Middle Head Rd., Manly
2ZBC—F. J. Caton, 23 Jefferey Ave., North Parramatta
2ZBR—B. H. Ridley, 4 Woodstock St., Bondi Junction
2ZBS—W. J. Stewart, Hotel Acton, Canberra, A.C.T.

Victoria

37L—J. R. Lancaster, 259 Nepean Highway, Parkdale, S.11.
3SD—R. V. Wilson, 9 Vine Grove, Carnegie.
37G—E. L. Blackmore, Dundas Rd., Maryborough
3VW—G. Stoble, 70 Bell St., Heidelberg West, N.33
3AVH—J. F. Hirst, 833 Drummond St., North Carlton, N.4
3AVR—H. V. C. Randall, C/o J. C. Martin, 4 Hooper St., Murrumbidgee
3AYM—G. A. MacFarlane, Peersonsdale, via Sale
3ZBC—J. O. Goodall, C/o S.R.W.S.C., Tocumwal Rd., Numurkah
3ZBK—R. G. Kirby, Lot 56, Pearl St., West EsSENDEN
3ZBL—E. L. McLean, 1 Aescla St., Murrumbidgee, S.E.9.

South Australia

3SG—S. G. Tonkin, 9 Abbotsbury Place, Evansdale, Adelaide
3YL—L. Lindley, 56b Brighton Rd., Glenelg
3ZAD—P. M. Williams, 43 Harrow Rd., Somerton Park
3ZAM—J. McD. Moffatt, 8 Swan Terrace, Port Adelaide
3ZBC—L. E. Coombe, 44 King St., Mile End, Western Australia
3ZAC—J. F. Chambers, 17 Leon Rd., Delkeith.

7DJ—D. H. Johns, 35 Waterworks Rd., Dynabrook, Hobart
7ST—Launceston Army Signals Radio Club, Paterson Barracks, Launceston
7ZAJ—P. J. Edwards, 8 King St., Sandy Bay.

Tasmania

6WV—Wireless Institute of Australia, Papua-New Guinea Division, Station Five Mile, Port Moresby; Postal: Box 55, Port Moresby.

CHANGES OF ADDRESS

VK—
2RD—A. E. Behrmann, Flat 6, 11 John St., Petersham
2MJ—A. J. T. Crisp, Lot 26, Tempe St., East
2TU—A. T. Boaser, 324 West St., Crows Nest
2ADG—A. A. Cheetham, 70 Edward St., Redfern
2AEK—V. S. Joyce, 33 Oaks Ave., Dee Why
3ALT—W. C. Aspley, 23 Abercorn St., Bexley
2AUF—K. Postler, 121 Brighton Boulevard, North Bondi
2AYD—D. E. Evans, Station: On board S.S. "Bundaberg", Postal: C/o Adelaide S.S. Co. Ltd., Bridge St., Sydney

Victoria

3BC—B. C. Cooper, 48 Spicer St., Beaumaris
3CM—R. G. Selman, 18 Charles Court, West Moorab, Geelong
2ACD—R. A. Hipwell, "Ratons", Pier St., Dromana
3ALJ—J. Leach, 9 Moorooklye Ave., Oakleigh, S.E.12
3AJJ—J. R. King, Little Opie St., Lower Ferretree Gully
3AJS—J. S. Duncan, Station 32 Dandenong Rd., Caulfield, Postal: C/o Commercial Bank of Aust. Ltd., 421 Bourke St., Melbourne
3AKC—C. J. Griffiths, 29 Ryer St., Wangaratta
3AWV—G. C. R. Waters, 13 Allambie Cres., Yallourn
3ZAH—H. H. Haynes, 87 Latham St., East Bentleigh
3ZBW—D. G. Walker, 1 Goode St., East Malvern, S.E.18

Queensland

4DA—M. J. Swoby, Station: 100 Drayton St., Dalby; Postal: 96 Cunningham St., Dalby
4FH—J. F. Bull, Flat 4, Vella's Bldgs., Victoria St., Mackay.

4HM—H. J. Murphy, 38 Hunter St., Woolloowin, N.S.
4KB—P. J. Kelly, Cambridge St., Camp Hill, Brisbane

South Australia

5DZ—J. A. Casey, 26 Moore St., Enfield.

Western Australia

6AE—H. A. Lee, 56 Beatrice St., North Innaloo
6LJ—J. Moad, 110 Edenborough St., Mt. Hawthorn
6ZAK—D. J. Knox, 1 Kingsley Drive, South Guildford

Tasmania

7PF—P. D. Frith, Penquite Rd., Norwood, Launceston
7YH—F. W. Hand, Esplanade, Seven Mile Beach.

CANCELLED CALL SIGNS

VK—
2SG—G. G. Tonkin, New VK3SG*
2AFS—R. V. Wilson, New VK3SD*
2ZBP—F. W. Fowler, New VK3APF*
3QQ—J. R. Lancaster, New VK3JL*
3UT—J. T. Lake (Major), New VK3OK*
3ANL—E. L. Blackmore, New VK3TG*
4DE—J. F. Hirst, New VK3AVH*
4RT—R. Thorley
1DJ—D. H. Johns, New VK3DJ*
3VW—G. Stoble, New VK3VW*
 * See New Call Signs.

— — —

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National Field Day, 1955, Results

The Field Day for 1955 was cancelled by the Contest Committee because of extensive emergency work in New South Wales, but after requests by interested Amateurs, the Contest was held on 3rd April.

Participation seemed less than in previous years and a perusal of logs shows that active portable stations numbered in VK2, 4; VK3, 16, VK4, 1; VK5, 1; with no indication of activity by the other Divisions.

The top scorer this year was VK3YS operating exclusively on 144 Mc. with 0.5 watt input to a 6AK5 and a five over five beam.

Score is the highest gained in any section.

Example		
VK3YS	72.00	points
VK2WI	33.75	"
VK3IE	16.00	"
VK3AH	16.00	"
VK3ADW	15.43	"
VK3RN	8.75	"
VK3GE	7.60	"
VK3ZAM	5.80	"
VK3APB	4.00	"
VK5PS	3.40	"
VK3SX	2.36	"

Fixed
VK3ARJ 6.00 points

Listener
N. G. Clarke (VK2) 52 points

The Contest was set for early March by the Committee, following a directive

by Federal Convention that it be held at this time, but comment from entries indicates that a holiday week-end would be more suitable as it allows an extra day following the Contest and that April can be decidedly cold for this type of contest.

The Committee will review the rules in the light of comment received and endeavour to suggest amendments which will better meet the needs of the Contest.

Awards
VK3YS—1st in Australia.
VK2WI—1st VK2, Open Section
VK3IE—1st in the Phone Section (excluding VK3YS).
VK5PS—1st, VK5 Phone Section.
VK3AH—1st in the C.W. Section.
VK3ARJ—1st VK3, Fixed Station.
N. G. Clarke, VK2 Listener.

Federal Contest Committee



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BI-MONTHLY VICTORIAN SCRAMBLE

In accordance with a motion passed at the 1954 State Convention, the Divisional Contest Committee of the Victorian Division has organised this Bi-monthly Victorian Scramble in order to foster Amateur Radio activity on all frequency bands allotted to Australian Amateurs. It is further intended to train, by means of this Scramble, Victorian Amateurs for the possible requirements of Civil Defence Communication work. For this reason, the rules require participants to show ability in speed and accuracy.

RULES

1. The Bi-monthly Victorian Scramble is open to all transmitting Amateurs resident in the State of Victoria, and to Short Wave Listeners resident in the Commonwealth of Australia. However, only financial members of the W.I.A. are eligible for awards. Transmitting participants will endeavour to contact as many other Victorian stations as possible.

2. Until further notice, the Scramble is to be held on each **first Monday** of the months October, December, February, etc., during the period **2000 to 2200 E.A.S.T.**

3. Participants may enter one of the following sections:

- Section A: C.w. only.
- Section B: Open—C.w. and Phone.
- Section C: Phone only.
- Section D: Receiving Section.

4. Participants may use any frequency band allotted to them, but only one contact per station is permitted, regardless of the band of operation.

5. Participants must observe all regulations as laid down in the "Handbook for the Guidance of Operators of Amateur Wireless Stations." Any breaches will lead to disqualification.

6. All transmitting stations entering the Scramble will call "CQ VK3."

7. Transmitting stations are required to exchange the signal report and two groups of five letters each. The procedure shall be as follows: Each participant selects two groups of five arbitrary letters at the beginning of the Scramble,

passes them to the first station contacted, and receives two groups. In following contacts the participant will pass the groups received in the preceding contact.

Example (c.w. contact): Station "X" passes "599 HDEE QLMRS" to station "Y" and receives "579 AMREF DBECG". Next, station "X" contacts station "Z," passes "599 AMREF DBECG" and receives "599 DRAIG GHKQ." Thus station "X" will use the groups "DRAIG GHKQ" for the following contact, and so on.

The above example is also valid for phone contacts if the RST report is replaced by an appropriate RS report. A complete exchange of reports and groups must take place before any points may be claimed.

8. Transmitting participants score one point per contact.

9. Short Wave Listeners will record contacts of stations participating in the Scramble. One point will be earned for logging the contact of a station, complete with report and groups sent by that station. Only one such log entry may be made of any station, regardless of the band of operation. The call sign of the station being contacted must also be recorded in each case.

10. Logs of transmitting stations must show in this order: Time (E.A.S.T.), band of operation, call sign of station worked, report and groups sent, report and groups received.

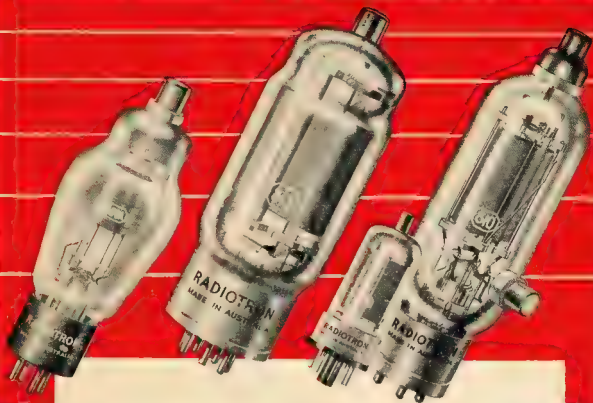
Logs of receiving stations must show in this order: Time (E.A.S.T.), band of operation, call sign of station heard, report and groups sent by that station, call sign of station being contacted.

Participants are required to submit a signed declaration that all P.M.G. regulations and Scramble rules have been observed.

11. Certificates will be awarded to the top scorer in each section.

12. Entries of all participants must reach the **Divisional Contest Committee**, Wireless Institute of Australia, Vic. Div., 191 Queen Street, Melbourne, C1, on or before the last day of the month in which the Scramble was held.

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DX ACTIVITY BY VK3AHH†

PROPAGATION REPORT

2.5 Me. Conditions for North America existed between 0730z and 1300z. Break-throughs to Africa were reported around 1800-1900z.

7 Mc. Consistent conditions for North America were accompanied by break-throughs from the Far East and Central and South America around 0650-1700z. Contacts between South Africa and Western Australia were made between 1800 and 1630z. European conditions existed over the long route 0900-0800z and, over short route, around 2000-2200z, 2300-2400z in Western Australia, respectively.

14 Me.: Again, an accurate statement on the times of break-throughs is difficult. However, the following appeared to be the peak periods: For Europe 2300-2400z and 0340-0400z; for North America 1030-1700z and 0530-0700z; for Central and South America 2300-0000z and 0300-0700z; for Africa 0400-0800z; for South-East Asia, the Far East, and the Pacific Islands no definite times can be mentioned.

21 Mc.: Conditions on this band have deteriorated but break-throughs to North America (2300-2400z), Africa (0600-0800z) and Europe (0900-1100z) have been reported.

27 and 28 Me.: As was to be expected, propagation conditions were not as good in July as they were reported for preceding months. No reports have been received.

NEWS AND NOTES

The wheels of history turn through decades and centuries to better technical achievements. If we ever had space visitors, they were far too shy to get out and tell us about their trip, about our own ionosphere, and where we have to tighten a few screws to improve conditions. Thus we have to do it ourselves. Our tiny satellites are a first step towards practical and effective ionospheric research. And perhaps our first space ships will cruise around before this eventful century is over. Get ready for the "Worked All Planets" award!

Back to earth, ill weeds are growing
apace in our 7 Mc. garden! Another
commercial c.w. station was observed
on 7013 Kc.: VU9 in contact with SOX
(from 3OH).

Can you receive on 7 Mc.? Please have another look at the list of b.c. stations there—in "A.R." 7/66—and send in your report. Thank you!

KC8CG is looking for VK5—Northern Territory on 14 Mc. (from 3KR)

G3HPM will operate **ZD9AD** on all bands during an expedition on **Gough Island**. (from 3YS)

ZC3AC appears to be active again from Christmas Island (from S.C.DXC.)

Legitimate VP7 stations on **Bahamas Island** have the letter "N" after the numeral.

BV1US and C3WV represent Formosa (from S.C. DX C.).

Canadian Maritime Mobile Stations
use VE0 as prefix (from 3YS).

Andoy Island is on the map with
LB91C.

YJIDL's frequencies are 7000.5, 14001, and 14055 Kc. (from 3KR and 3YS).

QTRs OF INTEREST

(From 21A, N.C. DX C, S.C. DX C.)
 XW8AB - P.O. Box 6, Vienna, Lebanon
 AP29 - 131 Gar Wood Rd., Quetta, Pakistan.
 AP2U - 8 Roberts Market, Quetta, Pakistan.
 OD5AF - Box 150, Tripoli, Lebanon.
 OD5AY - Box 3847, Beirut, Lebanon.
 QG5PU - Box 1945, Elizabethville, Belgian Congo
 MF4NL - Box 40 Bahrain Island.
 KA01J FEARL - Box 111, APO 500, C/o
 P.M. San Francisco, Calif.

* Hans J. Albrecht, 10 Belgrave Ave., Box 88
North, E.12, Vic.

- Call signs and prefixes

ZCZPJ—P. J. Reeves, Direction Island, Cocos-Keeling Group, Indian Ocean.
MP4QAL—Fergus Walsh, Decca Navigator Co., C/o Shell Oil Co., Doha, Qatar.

ACTIVITIES

2.8 Me.: It is nice to have a report on 3.8 Me from Western Australia, thanks 62J 62J reports Wx. Eric BEE88186 follows with VZCT, ZM8AS, W3, W6, W7, ZSSCV (1812a), ZSSPM (1842a). The next in line is Dave Jenkins who heard W7, W3, W5, W8, W4, W6, W9, and 3ABW adds Wx.

[illegible]

11 Me. Noel 2AMM KCEJAJ ZJAP
HRIAT. EAXCY, DJL FKAJAJ OEZH7
V5IGVY. DUTSV. PAAQO. 2AMM OEJN7
BEGD. DJL SJA GZ KILTA. VEP. XWABE
VQVQV. VKIRA. DJL PAA. FBABH. SIM
LJA. DJL OH. GWNQJ. CNBAP. ZNABT
ONAP4. DUSD0. CTJJS. ZSSJM. ZSB3C
FKIAM. EAXCY. FS XEIMJ. CEYVD
V5IGVY. DUTSV. PAAQO. 2AMM OEJN7
HBIPQ. KZSPF. VP9BM. STD. VQGLQ
ZD6BX. YZPT. YZCIS. PITA. PIZAR
V5IGVY. DUTSV. PAAQO. 2AMM OEJN7
CNQGO. COMDL. Q. 4XACQ. Sob AR
YNIPM. SIM John SHI ONAPU. 8EJ
COACT. DJL. GEWAB. OEJN7. ZSSJM. OR
BAU. VYJAE. ZSSOT. 4SK7K. T1PZP
COEWD. FTYTC. KJBDQ. XWABE. V5AC7
FBABH. VQBC. BRSSIM. CO6LC. CO7AH
DUCY. DUTSV. FKACQ. FKAAE. HREAB
LUIAR. OELISA. TIES. VYAE. VKIZM
VP9BM. VZMAG. VRIAR. VRIAS. VRISE
SMB3IC. VZMAG Jim Hunt and brother KVJAA
FKACQ. Ge Dave Jenkins: JM. 8AB7
V5IGVY. DUTSV. PAAQO. 2AMM OEJN7
V5IGVY. DUTSV. PAAQO. 2AMM OEJN7

[illegible][illegible]

21 Me: Neville 1APL heard ZS8JY Syd. 30C reports W5*, W5* and said that 4NG heard Europeans and Africans. Frank ZSU heard W3, W4, W5, W6 Jim Reel and brother report LUGDY, HP3PL, CE1BL, T2WMM, FR7ZA, MP4BBL, V56CW, VR3CG, KA8RK, KA8WK, DUTSV, KA2DW, KA2GS, KV6BB, VE3QA, V6ARO, W1, W3, W3, W4, W5, W6, W7, W8, W9, W0, K2KZZ/3M, W3UKY/MM, W3OZA/MM, W5AXI/MM, W6MZV/MM. Norman Clarke: W4, W5, V58BE.

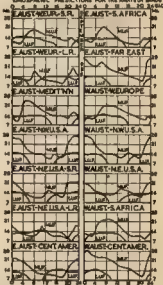
ST and SN Mo.: No reports were received.

Rare QSLs were received by 2AHN, VQ4Z, VSXZ, E4XK, E4AY, YN1AA, FR1ZA, YK1AA, QXCF MP4KAC, ZB1CH, T1RZ, E4MB, VK1EG 3BH, K4ABG/V4 3YD E4SDP, V1RA ZC1P, VQ4EG, VP5SC, ZM4AS, VP5OT, O4BHH, ZC1P, S1X, XE1TH, CN4MK, BAU- F4Y, V4Y, E4MB, E4MB, E4MB, VU3RC, ZREK, HV1SS, YV8DE, KV4BK

Thanks to the Northern and Southern California DX Clubs and VKA 2ACT, 2AHN, 2AMB, 2APL, 3CL, 3EG, 3JA, 3KR, 3OH, 3TE, 3YD, 3YS, 3ZC, 3ZU, 3AHC, 3AKM, 4NG, 6RW, 6SH, 6RK, 6EJ, 6AU, and a w.p. BERS15S, Jimmie and brother, Dave Jenkins, and Norman Clarke

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NEW SOUTH WALES

The Midwest 144 Mc Contest was held during the evenings of 16th and 17th July, and while the number of stations taking part was not as great as in some past contests, the number operating at the same time must surely have been an all-time record. All agreed that the Contest was one of the most enjoyable held on the band. The Contest was run over two evenings from 1830 to 2300 hours, 39 stations took part, not including those that were standing by in case of trouble because of the high gear failures. Why do we etc., always choose contest time to give trouble?

The results 1st, 1XX, 55 pts.; equal 2nd, 2JX, 1HE and 1ADY/M, 54 pts., equal 3rd, 1APQ and 1ATO, 52 pts. Congratulations to Ted 1XX for his fine performance.

The Contest Committee wish to thank all who took part and made the Contest a success. Also, in particular, thanks to the 18 stations who sent in logs.

During the Fox Hunt, held last month, we heard so much hot air from the SIL-ENP combination, about how good they were and how bad SOA was, that the Contest Committee thought they would give the SIL-ENP pair newsworthy status by making them the "Fox" for the August 7 Fox Hunt.

Sydney has had a very active visitor, that is, he's been very active on 3 mx. Don JBS, of Albany, has been operating portable while here on holidays. He's got a lot of experience on 3 mx. and has QSL cards from all over the world. Don told us that he has two 3 mx converters—both xtals—and a locked, one has a p.p. r.f. stage, the other a cascade front end. His reason for this I am assuming is that he can work with both VKEs and YKIs. It's a nice handicap.

Asst. Gen. Sec. of the V.h.f. Group was held in the usual room of the Leichhardt-Petersham Technical College and 43 members and visitors were present. Our chairman, Roy BEO, was unable to attend owing to a bout of influenza. The vote of thanks for the chair was taken by Percy IAFQ our Vice-Chairman. The entertainment for the evening took the form of three lectures, the first being given by Dr R. Black, GZ. Bob presented the Group with a copy of "The Art and Work of Heinrich Hertz." In the presentation the members were told how the experiments carried out by this learned gentleman on the transmission of electrical waves were involved in the use of a v.h.f. wavelength, some very close to 300.

The next lecturette was given by Barry Goodman, 2ZAG. Barry prevailed upon a lot of manufacturers and distributors to allow him to bring along to the meeting a range of samples, mostly v.h.f. components, which are available to Amateurs in Sydney. A lot of work had gone into this presentation and the thanks of the Group go to Barry, his XYI and the firms

The final talk was given by Bob Winch, RCA. He described the results of his experiments with the thought in mind of using the 12AX7 as a Class B modulator, his line of thought had led him to think that this could be done despite what the valve curves had told him. So he had, in conjunction with a 12AX7 carried in Class A mode, designed a circuit which could be used under class B conditions. His findings were that with a load of 15,000 and 4.5 volts negative grid bias, he had a standing plate current of 3 Ma. and he could get 7.5% of undistorted audio output with a 100 ohm load. The former with a 2% distortion, he said accurately.

Hugo FWH is on again, and putting a fairly consistent signal into Sydney—JAIZ.

VICTORIA

Not even a very wet night dampened the spirits of the participants in the Fox Hunt. There was an excellent turn up, eleven cars, one motor-bike and sidecar, and 21 of the gang. The first location was held at the home of Heidelberg SVZ, was first followed by JALY and 3KED. On the run to the next location he was caught and taken to the next location. SVZ was again first, closely followed by Ray Price and JARY. Ray Price and Roy JARY were new starters in the hunt and both were caught at the first location. At the third stopping place, JANI and SEBBI, on their motor-bike, were first, and at the fourth location, which was in a spot behind the jail, JANI and SEBBI were first. JANI and 3KED and Ray Price, then followed by all the rest. The final location was held at the home of Eric JADU where the gang had supper and a drink. The evening was a very successful one. Many thanks Eric and Ruth.

making your home available to us. 303
as control station and was assisted by ZJAJ.
with cross bearings, many thanks Bob and Jack.
was JAHJ and ZJBH. The described in detail
their mobile equipment which they use four
days and fox hunts. With a ZB front-end
into a ZB front-end, a ZB front-end, a ZB
panels, modular equipment and to they certainly
amazed the Group with their ability to
into a ZB front-end, a ZB front-end, a ZB
motor-bike and sidecar OAHJ. The
equipped with an S meter, which could be
thrown from the S meter circuit to a straight
into a ZB front-end, a ZB front-end, a ZB
This interesting lecture was followed by a
short talk from Jack ZJAJ, who described a
was building with a 7963 in the
the output stage.

At 2 mxx WX has been rather quiet during the last few weeks several of the chaps have been busy with most of the time re-building their equipment to be ready for the next break through. Laurie 3ALY has built up a new station which has a pair of RK4s in p.p. parallel, a 600 ohm resistor in series with a built a c.e. tri with a 6166 pa with 30w input. His beam is a four el. rotary and rx is a super regenerative. Ken 5ZBC is on the band from the Air Force listening just outside Ballarat. He is using 80w. Ken 5ZBC is a very experienced and has had another call heard on the band recently from the Eszenod district. He uses a QX20/20 and a 600 ohm resistor in series with a built a c.e. tri with a 6166 pa with 30w input. His beam is a four el. rotary and rx is a super regenerative. Ken 5ZBC is a very experienced and has had another call heard on the band recently from the Eszenod district. He uses a QX20/20 and a 600 ohm resistor in series with a built a c.e. tri with a 6166 pa with 30w input. His beam is a four el. rotary and rx is a super regenerative.

[illegible]

SOUTH AUSTRALIA

50 Me.: Last month saw a rise in the number of stations operating on this band. Jack SLR has finished a new n.b.f.m. exciter unit and plans to start his new 100-watt drive a new 3 mhz rig. Jack has had one check on your scribble and the results were very good. However some more checks would be appreciated by Jack. What about it chaps? After some months of absence Les SAX has shown up again on this band and has been heard working 5RC cross-band on 144 Mc. Ken SKC has come out of hiding and is back on 50 Mc. again.

Tom 5TL is, from reports, going to operate on 80 Mc this coming season. As most of you know, Tom is stationed at Alice Springs. You had better get cracking Tom because all the Australian and New Zealand 80 Mc. boys will be after your QSL card in order to qualify for their W.A.S. on 80 Mc. Certificate.

144 Mc. Three new stations bobbed up on
2 max last month, viz.: Les 5AX, Comps 3EF
and Des 5DK. The first two stations are
located in Gawler and Des 5DK is located about
two hundred yards away from Col 5RO in
Woodville West! Les 5AX is putting an 88
signal into Adelaide. Les 2 max gear consists
of 832 p.a. 10 w input, 12 el. all driven array
40 ft high, xtal converter feeding 8C342,
frequency is 144.4 Mc. Comps 3EF is using a
2228 p.a. 15w input, 4 el. Yagi and converter
has yet to come. Both Les and Comps are

All Models Exhibition

At the All Models Exhibition and International Trade Fair to be held at the Exhibition Buildings, Melbourne, from 25th August to 10th September, the Wireless Institute will be exhibiting from 25th August until the 3rd September only. This is a change of date from that advertised in last month's magazine and will be of interest especially to Country and Interstate Amateurs whose help with contacts on 2, 20, 40 and 80 metres will be greatly appreciated by those operating from the stand at the exhibition.

Building 100 has a final consisting of p. 5146. Dec 52KX has a QRG/40 as a final on 3 Mc. but latest reports are that he is re-building the station in order of obtaining more drive. On 2nd of July 51KX was contacted. He had a contact on 144 Mc. The contact began on c.w. and towards the end of the contact he was heard to say "5W1". The contact on 51KX at Mt. Bryan is copying the 5W1 signal relayed on 144 Mc. by your scribe. Bob is 100 miles north of Adelaide. Let me know when you are in the area so we can get together and organize some contacts for you. 52KX, 51KX, 52KX and 57M are all talking 144 Mc. but to date no one is on either receiving or transmitting. Believe me 51KX is not a 144 Mc. converter, also 52KX. 52AW is about to erect a 16 ft. beam fed by p.p. 5146 as is

200 Mc.: Stations active last month were Vic, WH, Bob SSR, Ron SZR and SZBC.—SMT

WESTERN AUSTRALIA

The July meeting of the V.h.f. Group was held at the residence of Don SHK. A motion was passed expressing concern at the proposed danger to the 50-54 Mc. and 144-146 Mc. bands. Despite the fact that the 50-54 Mc. band is 00-50 Mc. band, it was felt that as the change was only in Australia and not throughout the world, it would preclude any further investigation of DX propagation and the possibility of increased solar activity. Whilst crossband contacts overseas would theoretically be possible, the 50-54 Mc. rx'ed on channel 1 in Australia and channels 1 and 2 in the 00-50 Mc. region would eliminate any chance of contacts similar to VK8KL/VYACX/ENI and

The suggestion put forward by the Group was that no change be made in the 50 Mc. band and that the frequency of Channel 1, Channel 2 and Channel 3 be changed to 43.75 Mc., Channel 2 (43.70 Mc.) would then be the lowest channel. Such a proposal, if carried out, would eliminate possibility of t.v. due to 50 Mc. harmonics in the 20 Mc. band of Channel 1, possibility of Sporadic E caused interference which is highly likely to occur with any t.v. signals on Channel 1. A check of only three VKS logs showed that there was intensive reception for 1961. Every year since 1948 has seen VKS/ZL contacts. The lower powers and less advantageously placed serials of the Amaleir compared to those proposed for t.v. do not need further mention.

Rolo GBO gave a very interesting and informative lecture on the design and operation of valve testers and illustrated it with circuits of his own. The thanks of the Group go to Rolo and to Don and his parents for their part in a most enjoyable evening!

144 Mcs.: The 144 Mc. Scramble took place recently. Only two new calls apart from the regulars put in an appearance. Welcome Bob SBE and Lou EU to 2 mc! The unofficial winner was Lionel 6ZAE. He used a v.f.o. and a 1000 watt amplifier. He had a very good effect that he worked the maximum possible number of stations. Don 6ZAK, Ron 6ZAR and Leo 6ZAT had considerable fun with a portable station in the hills. Denis 6AW put in a good effort with a 1000 watt "beer watt" award, and put it on 146 Mc. Dennis made contact with Don 6ZAV and Murray 6ZAM over 4 and 5 miles respectively, using a power of 50 microwatts. He reduced "power" to 10 microwatts and contacted Murray when he was using 5 microwatts!

280 Mc. Denis SAW has been busy experimenting with 18Es as an amplifier on this band. He was unable to drive them with his 433 and intends to try a pair of 18Es as triplers driving another pair. Rolo SBO vouches that Denis' 2 watts to his 433 produce the best 280 Mc. signal he has heard. —GAA.

S.W.L. SECTION*

S.W.L. CONTEST

The winners of the S.W.L. Contest sections were: Section 1, largest number of QSLs on Amateur Bands—Jan. 7, Hunt, with a total of 121 QSLs. Section 2, Broadcast Band DX—Jan. 8, Woodman, with a total of 82 QSLs. Section 3, largest number of QSLs in all sections—Jan. 2, Hunt. Section 4—There were no entries in this section.

NEW CONTEST

During the month of September an S.W.L. Contest will be held from the 1st to the 30th September on all bands—160, 80, 40, 20, 15, 10 and 6 metres and is open to all a.w.l's. The Contest winner will be the one who receives the largest number of QSLs confirming ZL signals heard during the month. QSL cards must be received by the end of October. All QSLs should be sent to the Contest Committee, c/o John Wilson, 37 Rayment Street, Alphington, N.30, to reach this address by post mail, 31st October, 1955.

*Compiled by John Wilson, WIA-13001, 37 Rayment Street, Alphington, N.30, Victoria.

VEE MEETING

The S.W.L. Group met in the rooms, 191 Queen Street, at 200 hours. The meeting took the form of a Constructional Night when members brought along pieces of equipment under construction. A good time was had by all in ironing out those bugs, etc., in the gear.

VKS MEETING

From Leo Cragen we received news to the effect that the VKS Division met in the Central Methodist Mission rooms at 2000 E.S.T. on 11th July. QSL cards were distributed and members were issued with official numbers.

Many thanks to Rodger Gillard who brought along his ARS receiver and gave the younger ones a chance to hear the short wave and Amateur bands.

Len is new VKS correspondent and our thanks go to our retiring scribe, Mac Hilliard, for his past services.

OFFICIAL S.W.L. NUMBERS

Federal Executive have now granted official WIA s.w.l. numbers. For Victorian Division members these numbers are WIA-13001,

WIA-13002, etc., and for South Australian Division members, WIA 15001, WIA-15002, etc.

Associate members who wish to have their own numbers are advised to write to the Divisional Secretary of their State, who will then issue a number to them.

INTERSTATE NEWS

Information from other Divisions on the activity of a.w.l's in their State would be welcomed for the magazine. Items of interest should be forwarded in John Wilson, address below these notes before 1st of each month.

NEW FRIEND

From U.S.A. we received two monthly reports on VK stations heard in U.S.A. The reports are from H. Southwick, 316 Bank Street, Fall River, Mass., U.S.A. Thanks very much for the reports, Mr. Southwick, as we have in VK land appreciate the knowledge of the strength of our signals being heard by a.w.l's in U.S.A.

Mr. Southwick is ex WIFS. He reports hearing VKs 2ZR, 2LX, 2NY, 2FU, 2KX, 2KJ, 2AU, 2XU, 2XB, 2YF, 2ARQ, 2FH, 2GU, 2VP, 2TK, 2ZQ, 2XN, 2BC, 2MC, 2HT, 2VZ, 4DB, 4EM, 2JO, 5KU, 5BO, 2UW—all at 35.9.

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(For operation to 200 Mc.)

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Teletron Type ST27-L 7-pin Miniature (less Can), 14/- dozen.

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Teletron Type ST57-G/3 7-pin Miniature (with Long Can), 3/8 each.

Teletron Type ST19/L 9-pin Noval (less Can), 16/4 dozen.

Teletron Type ST59-L/2 9-pin Noval (with Short or Long Can) 7/- each.

McMurdo 7-pin Miniature (with Can), 2/8 each.

McMurdo 9-pin Noval (with Can), 7/- each.

Belling & Lee B&A Bakelite Wafer Socket, 2/3 each.

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(per "QST," March 1955)
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FEDERAL, QSL, and DIVISIONAL NOTES



FEDERAL

Fed. President: W. T. S. Mitchell, VK3UM.
 Fed. Secretary: L. D. Bowle, VK3DU, Box 3611W, G.P.O., Melbourne.
 QSL Bureau: J. E. Jones, VK3JR, 23 Landale Street, Box Hill, N.11, Vic.
 D.C. C. Manager: A. G. Weynton, VK3XU, 30 Park St., West Brunswick, N.10.

NEW SOUTH WALES

President: Jim Corbin, VK3YQ.
 Secretary: Harry Hickin, VK3ACH, Box 1734 G.P.O., Sydney.
 Meeting Night: Fourth Friday of each month at Science House, Gloucester Street, Sydney.
 Divisional Sub-Editor: Ted Whiting, VK3ACD, 15 Loudon Street, Five Dock.
 QSL Bureau: J. B. Corbin, VK3YQ, 11 Maloney St., Eastlake, Sydney (Inwards and Outwards).
 News Correspondent: North Coast and Tablelands: Noel Hanson, VK3AHN, Ryan Ave., West Kempsey, Newcastle; Ron McD. Stuart, VK3ASJ, 48 Dunbar St., Stockton; Coalmains and Lakes: Harry Hawkins, VK3YJ, 27 Comfort Ave., Cessnock; Western: W. H. Smith, VK3WH, Camblow, Forster; South Coast and Southern: Eric Fisher, VK3YD, 1 Oxbridge St., Warraroon, South Western; J. W. S. Edge, VK3AJO, Wallace St., Coolmoun; St. George, Chas. Coyle, VK3YB, 41 Victoria Road, Kogarah; Western Suburbs: Harry White, VK3AAH, 33 Flavelle St., Concord.

VICTORIA

President: G. Dennis, VK3YF.
 Secretary: C. Gibson, VK3FO.
 Administrative Secretary: Mrs. May, C.O.R. House, 191 Queen St., Melbourne.

FEDERAL

LIMITED (TECHNICIAN) LICENSES

In order that a clear picture can be obtained Federal Executive has carried out a survey of the license figures of recent years.
 The following are those the number of licenses issued and cancelled each month (where available) from June, 1952, to May, 1953 inclusive. As the first 2 call sign was issued in June, 1952, there are two years with no 2 calls and one year with full calls and 2 calls.

	Full Licenses				Limited Licenses			
	1952-1953		1953-1954		1954-1955		1954-1955	
	New Issued	Calls Cancelled	New Issued	Calls Cancelled	New Issued	Calls Cancelled	New Issued	Z Calls Cancelled replace by Canceled Full Calls
Month								
June	21	11	11	21	12	7	18	—
July	12	0	7	6	16	13	3	—
Aug.	18	0	10	9	17	3	3	—
Sept.	36	23	22	41	9	11	9	1
Oct.	—	—	—	—	18	6	20	—
Nov.	8	7	8	3	12	10	5	—
Dec.	7	4	—	8	—	1	15	1
Jan.	21	12	12	17	15	7	6	—
Feb.	11	0	4	23	12	9	18	1
Mar.	25	7	—	—	12	13	5	1
Apr.	13	18	19	8	12	—	—	—
May	18	4	19	19	12	4	7	4
Total for year	194	110	133	166	131	88	103	1
Net increase for year	84	—	32	—	69	—	20	—

LETTER FROM PRESIDENT A.R.R.L.

Federal Executive has received the following letter from the President of the American Radio Relay League, Mr. G. L. Donland, W1TNS. Executive appreciates the sentiments expressed therein and on behalf of the Amateurs of Australia has responded suitably.

West Hartford 1, Conn., U.S.A.

Wireless Institute of Australia,
 Box 3611W, G.P.O., Melbourne,
 Victoria, Australia,
 Gentlemen,

It gives me a great deal of personal satisfaction, my staff and I, as President of the American Radio Relay League, to forward the following action of its Board of Directors, unanimously adopted at the Annual Meeting

Meeting Night: First Wednesday of each month at the Radio School, Melb. Technical College.
 Divisional Sub-Editor: K. E. Pincoff, VK3AJF, 18 Dunscombe Ave., Ashburton, S.11.
 QSL Bureau: Inwards: Graham Roger, VK3ZB, 2 Queen Street, Surrey Hills, Vic. Outwards: Frank O'Dwyer, VK3OF, 190 Thomas St., Hampton, S.7.

Zone Correspondents: Central Western: W. J. Kincaid, VK3AKW, Magdala, Lubock, South Western: W. Wines, 11 Redfern St., Warrnambool, and E. Gledhill, Grubben Roger, VK3ZB, 2 Queen Street, Surrey Hills, Vic. Outwards: Frank O'Dwyer, VK3OF, 190 Thomas St., Hampton, S.7.
 Central Eastern: A. D. Buchanan, VK3FD, "Booroodind," Wahing, Far North Western: M. Folia, VK3CZ, 101 Linton Ave., Mildura, Eastern: C. J. Arnold, VK3AJA, McAlister St., Stratford, North Western: C. Case, VK3KJ, Cumby Ave., Birch: S.W.I. Group: John Wilson, 31 Bayment St., Alphington, N.20.

HVEMELAND

President: J. T. Hope, VK3OL.
 Secretary: W. A. Young, VK3YA, Box 632, G.P.O., Brisbane.
 Meeting Night: First Friday in each month at the Royal Geographical Society Rooms, Ann Street, City.
 Divisional Sub-Editor: J. T. Hope, VK3OL.
 Royal Parade, St. John's Wood, Ashgrove.
 QSL Bureau: Inwards: J. Flen, VK3JF, Wanda St., Buranda, Outwards: Miss Clair O'Brien, 30 Jardine St., Stafford.

SOUTH AUSTRALIA

President: G. M. Bowen, VK3XU.
 Secretary: R. G. Harris, VK3RR, Box 1234K, G.P.O., Adelaide. Telephone: J 1151.
 Meeting Night: Second Tuesday of each month at 17 Wymouth St., Adelaide.

This survey is based on the monthly lists issued by the Department and printed in "A.R." Full call signs issued in replacement of cancelled call signs have been omitted from the number of new calls and from the number of cancelled calls. Full call signs issued in replacement of cancelled 2 calls have been included among the new full call signs and are listed separately from other cancellations of 2 calls. These figures do not lend themselves to the formation of any definite conclusions, but in themselves form a basis for thought.

Divisional Sub-Editor: W. W. Parsons, VK3P6, 10 Victoria Avenue, Rose Park.
 QSL Bureau: Geo. Luxton, VK3XK, 8 Brook St., West Melbourne, South Aust. (Inwards and Outwards).

WESTERN AUSTRALIA

President: F. A. T. Tredres, VK3FT.
 Secretary: J. Mead, VK3LJ, Box 11033, G.P.O., Perth.
 Meeting Place: Perth Technical College Annexe, Toombs Rd., Perth.
 Meeting Night: First Wednesday of each month.
 Divisional Sub-Editor: R. H. Atkinson, VK3WZ, P.O. Box 157, Geraldton.
 QSL Bureau: J. Mead, VK3LJ, VK3RU, Box 115, Perth, West. Aust. (Inwards and Outwards).

TASMANIA

President: F. J. Evans, VK3JF.
 Secretary: W. G. Tall, Box 371B, G.P.O. Hobart.
 Meeting Night: First Wednesday of each month at the W.I.A. Club Room, 147 Liverpool Street, Hobart.
 Divisional Sub-Editor: V. F. Dore, VK3JD, 28 Brent Street, Glenorchy.
 QSL Bureau: K. A. Johnston, VK3RX, 34 Tower Road, Newnham.

Zone Correspondents: Northern: M. A. Chaplin, VK3CA, 36 Trevallyn Rd., Launceston; North Western: R. K. Wilson, 11 Cunningham St., Burnie, Tasmania.

PAPUA-NEW GUINEA

President: F. M. Nolan, VK3FN.
 Secretary: D. F. Lloyd, VK3QG, C/o. O.T.C. Receiving Station, Port Moresby.
 Divisional Sub-Editor: J. Holland, VK3BW, C/o P.O. Box 76, Rabaul.
 QSL Bureau: D. H. Beadel, VK3DB, C/o P.O. Box 197, Port Moresby.

operations, in International harmony and the advancement of Amateur Radio world-wide for the good of all peoples."
 I am glad to hear that the International Amateur Radio Union, to add my own deep feeling of appreciation for the fine co-operative and friendly spirit of friendliness so prevalent throughout the I.A.R.U. Your headquarters staff joins me in wishing prosperity and happiness to all.
 With cordial 73,
 Sincerely yours,
 (Signed) G. L. DONLAND, President.

FEDERAL QSL BUREAU

HAY JONES, VESL, MANAGER

The L.A.R.R.—the national society for Brazil—announces the addition of Navassa Island (KC4) to the Worked All America (W.A.A.) award countries. List Credit on this country will be given when QSLs confirm contact after November 15, 1953; that is post-war.
 The Hon. Secretary of the South African Radio League desires it to be known that the call sign ZS8VA is being pirated, probably by someone situated in the Pacific area. The holder has not been active for some time and is receiving many cards from stations in ZL, VK, KH8 and W. F. Mc. appears to be the stamping ground of the fictitious station.

Andrew Bos, who has been making signs over a long period as an Amateur (including ZD8B, Ascension Island), is now with Cable and Wireless at Fuli. He hopes to be active as a ZL shortly, as does Alan Wintbury, ex-VQCD, who, too, is with C and W, at Buva.
 KSDM, Clyde Anderson, of San Mateo, Cal., U.S.A. is handling a QSL card from Chas. VK3AJ and Ray VK3RH. Clyde, who is a keen DXer on 3.5 Mc, seeks VK contacts on that band.
 Bill Pouley, ZL12, my counterpart in N.Z., has advised under date of 15th June that he is having a spot of bother with the postal authorities regarding rates of postage on QSLs. That's an odd one, Bill, and we hope you overcome the problem satisfactorily. Promises to make me welcome during my trip to ZL.
 Writer will be absent on his trip to ZL from early September to late October. My good lady went her point (they always do) and will accompany me wherever I take in Auckland, Rotorua, Wairakei, Chateau, Kaitake, Wellington, Nelson, Greymouth, Hokitika, Cape, Christchurch and Wellington. Whenever possible write to me and I will send you a QSL and will be the guest of Dan ZL2AB and Jack ZL3AC for a couple of days. Unless DX looks up, I may not make much difference as the total number of QSLs received at the Bureau during July was less than 300!

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MIC 36



£6/18/6

Housed in attractive plastic case, this Microphone is ideal for home recording and public address, etc. Response unexcelled for its size and price. The performance is not affected by vibration, shock or low frequency wind noise. Omni-directional frequency response substantially flat from 30 to 7000 c.p.s. Recommended load resistance not less than 1 megohm dependent on low frequency response. Can be supplied complete with switch and floor stand adaptor as required at a small extra cost.

HIGH QUALITY MICROPHONE

Designed to meet even the most exacting requirements, this Microphone incorporates the world famous floating crystal sound cell construction. Its special characteristics are that its fine performance is not affected by vibration or shock. The fidelity is not impaired by low frequency wind noise.

SPECIFICATION

Recommended load resistance—not less than 1 megohm.
Output level —55 db ref. 1 volt/dyne/cm².
Frequency response—substantially flat from 30 c.p.s. to 10,000 c.p.s.
Directivity—non-directional.
Size—2½" spherical diameter.
Connector—Standard International 3-pin.

MIC 16



£24/19/6

GENERAL PURPOSE MICROPHONE

MIC 35



£2/15/-

substantially flat response from 50 to 5000 c.p.s.

SPECIFICATION

Output level —55 db ref. 1 volt/dyne/cm².
Cable—approx. 4 ft. of co-axial supplied.
Weight—6 ozs. unpacked, 7 ozs. packed.
Dimensions—microphone only 2½" x 2½" x 1"

TABLE AND STAND MICROPHONE

MIC 22



This omni-directional Microphone is robust in construction, with a pleasing appearance. Vibration, shock or low frequency wind noise will not affect the performance. The low frequency cut-off is dependent on the load resistance. The cut-off is given by the quotation, $F = 80 \div R$, where F = c.p.s., R = megohms. An adaptor (floor mounting) is available at low extra cost.

SPECIFICATION

Output level = -50 db ref. 1 volt/dyne/cm².
Output impedance—equivalent to approximately 0.002 uF. (0.8 megohm at 100 cycles).
Frequency response—substantially flat from 40 to 8000 c.p.s.
Recommended load resistance—not less than 1 megohm, dependent on low frequency response.

LAPEL MICROPHONE

MIC 28



£5/19/6

Designed to give freedom of movement, this Microphone is small and non-directional. Housed in a soft moulded rubber case, which gives protection against shock, it is provided with a pin at the rear of the case for pinning to the lapel.

SPECIFICATION

Output level—approx. -55 db ref. 1 volt/dyne/cm².
Recommended load resistance—5 megohms.
Frequency response—level throughout the whole of the audible spectrum.
Capacity—0.0015 uF. at 1000 c.p.s.
Impedance—100,000 ohms at 1000 c.p.s.
Cord—6 ft. shielded cable.
Size—1-9/16" wide x 2¼" long x 1" thick.

HAND OR DESK MICROPHONE

MIC 33



£6/18/6

This Microphone has been designed for the high quality public address and home recording field. High sensitivity and flat characteristics are obtained by a specially designed acoustic filter. Housed in an attractive plastic case with an unexcelled response for its size and price. Unaffected by vibration, shock or low frequency wind noise. Omni-directional frequency response substantially flat from 30 to 7000 c.p.s.

MICROPHONE INSERTS



(MIC 32 Illustrated)

CRYSTAL MICROPHONE INSERTS

These inserts are available in varying sizes ranging from as small as 15/16" square to 1-13/16" round, with various thicknesses from 7/32" to 9/16". Suitable for every purpose such as hearing aids, public address, tape recording, amateur broadcasting, etc., they have responses from 2250 c.p.s. to 3500 c.p.s. at 5 db to 30 db. Insert can be supplied with or without 10 meg. resistor as required.

MIC 32 insert, £2/15/6; all others, £1/19/6

MICROPHONE INSERTS



(MIC 23 Illustrated)

EXCLUSIVE AGENTS:

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SYDNEY, AUSTRALIA

Despite the return to civilisation of Bill Store, VK2BZ, and his marriage, he has not lost his entire VK1 log with Roy Barker, VK2AF, who is continuing to handle all QSLs.

Felix FKAC, in forwarding a few QSLs from Adrian FKAC, of Wallis Island, says that they expect to have a new FKAI Amateur shortly, under the call sign FKAI/MMA, operating on board the "Quebec" which is returning regularly between Noumea and Newcastle. FKAC and FKBA are assisting him to build his rig.

Chas Hawker, VK3BZ, ex-VK1AC, presently at Swan Hill, states he does not expect to be in that location much longer and desires all QSLs to his VK1AC operation go to his home address of Box 35, Dimboola, Vic. Chas is not active from Swan Hill as he is too busy catching up with the backlog of QSLs from the Macquarie Island activity. Due to his intense activity down there, his backlog is a huge one. But Chas, in attacking the job sensibly, doing little each day and of course replying first to cards received.

FEDERAL AWARDS

W.V.K.C.A. AWARD
Member Societies of the I.A.R.U. have been circulated with the rules pertaining to this Award. In addition, copies of the rules have been sent to the publishers of "CQ" and "Wireless World".
No applications for the Award were received during the month of July.

- DX C.C. AWARD**
Applications. It is necessary to point out to members applying for this Award or for additional credits to their present Award, that the following points are observed when certifying and giving credit for QSL cards:
- The QSL card must show the call sign of the confirming station.
 - The QSL card must show the call sign of the confirmer.
 - The location (not necessarily the postal address) must be shown.
 - A statement to the effect that a QSO is being confirmed must be made.
 - The card must show the date of the QSO.
 - The time of day must be shown (usually the signal report suffices).
 - The card must bear the initials, first name and last name of the person who made out the card.

Unfortunately many overseas stations do not always do these things and I have recently rejected cards because of the lack of some of these essential details. A card may be perfectly genuine and I will always give the confirmer credit for the QSO, but it is not possible to certify to the genuineness unless the bulk of this data is given.

Applications for Awards should note that any alteration or disfigurement of a card, not made by the person who made out the card originally, will cause the card to be rejected.

Additional Countries and Amendments
Since the publication of the last Official List of Countries, the following amendments are effective:-

French India (FNI). Effective 1/1/54 delete FNI, as at that time it became part of India proper. All confirmed prior to 1/1/54 will be credited for DX C.C., but confirmations after that date will be credited to India.

Walloo Islands (WI). This is a dependency of New Caledonia and DX C.C. credits starting 1/8/55 will be given for creditable confirmations on 1/1/54.

Tamou. Deleted as from June.

French Indo China. This now includes the States of Cambodia, Laos and Viet Nam. Due to the current political situation prevailing in this area, credits for confirmations of contacts with Cambodia (FB), Laos (KWA), and Viet Nam (VW) will not be given. Credits for FB (Indo China) contacts are still acceptable, however, for contacts prior to the evacuation of French Indo China. Government of the Netherlands. Credits will be given at this juncture for contacts with the above which is an American Military Base. It is possible, however, that at some date in the future this base may be declared to be a new country. Confirmations should therefore be withheld until this declaration is made.

Gordon Weynton, VK2XU, Manager.

NEW SOUTH WALES

The July meeting of the N.S.W. Division was held at Science House, Gloucester St., on 27th July, with large attendance being present. The visitors were welcomed by the President, Jim Corbin, 2YC, and included Ray Priddle, 9WF,

SOUTH-EASTERN ZONE N.W.A. 2ND CONVENTION

to be held at
ALBURY

ON
1st and 2nd October

Programme:-

Saturday, 1st October:-
Tour of Hume Weir.
Catered Dinner, Saturday night.
Films, Pick-a-Box, and other competitions.

Sunday, 2nd October:-
Transmitter Hunts on 144 and 3.5 Mc. bands
Auction of Disposables gear.
One Hour Scramble.
Blindfold Transmitter Hunt on 144 Mc. band.

Further information can be obtained from VK2BS at Albury, or VK2AJO at Coolamon.

SABO, 2AIR (ex-VYV), RDY and his wife, JUC, RDY, and the parents of VK2BD, who is now doing a tour of duty at Macquarie Island.

In the absence of the Secretary, Harry 2ACH, Bill 2VB took the stand and carried out Harry's duties for the evening. The small amount of business being dispensed with, the President handed the meeting over to the Secretary for the evening, Bill Store, ex-VK1EG, who gave a most interesting lecture on life in the Antarctic. He will remember that Bill Store was the first party to establish a base at Mawson and we left the meeting with no doubts as to the life led by members of these expeditions and the hazards encountered. The lecture was illustrated by three excellent films which were enthusiastically received by the large audience and we could not doubt the usual host of questions on life in these regions. All voted this effort one of the best of the year, and finally the meeting closed by allowing members and their ladies present to meet one another.

EXHIBIT AREA

We must apologise for the complete lack of notes in the last issue of the magazine. A chapter of accidents resulted from the loss of a dose of the current 'flu in my case, the late arrival of notes from country areas, and the tardiness of the Correspondents in failing to convey an Air Mail letter with the slowness one expects. So follows, please get some notes in and we'll do my bit in getting them to the fellows who do the final job, it will help us all.

There is much activity at present in the local area in readiness for the RD. Contest, many stations closed to allow what has been more or less silent for some months. This Contest should be one of the biggest held and we hope that the results will show a great improvement.

2FA, 2ACD, 2AUR and others are looking for the odd European contact these days. George is keen to get his new 10 ft. rig up and coupled to the new beam. 2AFT is doing well with the W. stations, but finds that they are fading now at night; gets cold in the shack. What was it Dottie said Jack when you tried to get the h.b.? Tom 2AT is another of those wrong way Corrigan merchants, now he found it much better to point the beam (Tom's beam) in the right direction. Never mind Tom, we know a chap who had a beam that was front-to-back right. Barry 2LK is now a poppa and our congratulations go out to him and his good lady. Yod 2BD and Andy 2VG have returned from Northern parts, did some nice fishing, lived on oysters and other things and really returned to the New England Highway in what appears to be good time for the distance covered. Rex who was the apparatus with the scarf round the curly head?

2QP is very diligently playing with a new beam, and it really works fine, it is a folded reflector. Suppose you have seen the article on this Laurie? 2AEK gets into the shack occasionally and works his share of what is now a S.A.C. and 2AF, who is otherwise busily getting organised with the h.c. and t.v. organisation, more will be heard of their efforts later. Any suggestions will be gratefully received by the committee. Alex 2PM is hospital for a spell with a gammy leg; hope it soon improves. Alex. A new beam has arisen—ALEX now has a UAD rig, write to the Class, assuming indeed, is also on holidays which helps. 2HK is heard occasionally, 2AAB is re-building his rig, write to the committee at all accounts. Also busy with the Library.

2ASW were heard now, and this applies to 2PY (ex-2AEZ)—both are busy with the class. Any of you fellows who are interested in Radio and wish to get into it, write to the Class Secretary, Rex 1734, G.P.O. Sydney. The class is very successful and you have the best of instructors so the rest will be up to you. Give it a go.

More and more subscriptions are awaited for the N.S.W. Amateur Co-operative to enable the committee to do the things outlined so many times. Please change your terms immediately to C. Quin, Hon. Sec., Box 1734, G.P.O. Sydney. We can, if you will help us, build for ourselves and make Amateur Radio bigger and better.

2AHW now operating from Bingley, fine signal on 14 Mc. despite the distance 2AKV still plugging along; GIBLT tells me he has been working Laurie's contest for some time. 2AIR is getting organised with 2144. 2ACI sits and listens and then swoops; nice to hear you, Rex. Andy 2AUM is very consistent, nice signal but will improve with the inception of the folded dipole. Bruce 2BQ is busy with the concrete, has a beautiful location, as has AIL, 2CJX up at Yallop; both are active. 2SV and group are holidaying in colder parts, down at the Federal Capital. AIL 2BJ now installed in a new location. 2BZ is doing fine and we can hear him at this location now. Wal 2SA still knocking the W. stations around, and we can hear him doing well with the beam; heard testing on the old man's band recently 2BG still around.

Shades of Old England. On a recent weekend, when 2HK sent me 2AFT's cross bow, with the assistance of W. 2VW, we managed to fire an arrow trailing a string over a five-foot fork in a 40 ft. tree. Only four shots were needed to get the string over the fork, despite a blustering westerly cross wind. Now we know how Jim gets his antennae over the tree. He is doing something to it—well nothing, anyway.

Tom 2AFN has a tale of woe these days. He is flat out digging foundation holes into rock for his new galvanised tower.

Have you sent your RD. log in yet? If not, do so immediately. All logs must be forwarded through the contestants' Divisional Council secretaries who submit them to the Federal Contest Committee in Adelaide on or before 29th September, 1955. Post your logs to Box 1794, G.P.O. Sydney, now.

EASTERN SUBURBS

Ray 2AIG now has a rotary dipole on 20 mhz. My guess is that after a spell of fun and games with this lone element, it won't be too long before he will have a string of 20 mhz. elements. Heard for the first time since his arrival in this region 4 or 5 years ago is Roy 2T who has a 40 mhz. beam. Heard on 40 mhz. phone. Ivan 2TN is reported to be gallivanting overseas, and is at the moment either in the U.S. or UK. Bruce 2ASE got going on 2 mhz. with his new beam recently. Little has been heard of him on h.f. bands, but maybe Ernest burns a bit of midnight oil?

Alec 2ASU has been heard on 2 mhz from his home in the East. He is putting out an SD signal by holding the feedline of a 40 mhz antenna against the 2 mhz p.a. tank. Heard on 40 mhz. phone. 2AUR is another of those who has Laurie 2AIG, in QSO with him, heard the nearby cluster—Andy 2AX. Also heard on 2 mhz. phone, after a fair spell of apparent inactivity on 2 mhz. 2VZ.

Nearest station in the East is 2ZAG. Les is putting out a good signal on 2 mhz and sports a 3 over 2 cascade converter, etc. The signal strength of 2ZK lies on the seaward leaves no doubt about w.h.f. propagation between the Blue Mountains and all Sydney, so far as 2 mhz users are concerned. In Wentworth Falls, Peter 2ZL is heard on 2 mhz. The usual story, very much if there is any part of Sydney and suburbs where his signal cannot be heard.

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BEEN HIDING
OUR LIGHT UNDER
A BUSHELL!**



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strongly, even on an indoor dipole. Which dispenses of the contention by a U.S. authority, who maintained that a t.v. transmitter at Wentworth Falls would be "too far away from Sydney." Was— with 200kw effective radiated power to boost 2 m x 2 m at least will disagree heartily with the suggestion.

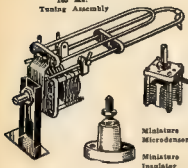
SOUTH WESTERN ZONE

Main news from the zone this month is of course the preliminary meeting held at Albury 24/7/55 at the home of Don ZSR. Members present were: 1BW, 1AID, 2AAV, 2ARS, Wagga, 2ZAA, 2FN, 2G, 2H, 2J, 2K, 2L, 2M, 2N, 2O, 2P, 2Q, 2R, 2S, 2T, 2U, 2V, 2W, 2X, 2Y, 2Z, 3A, 3B, 3C, 3D, 3E, 3F, 3G, 3H, 3I, 3J, 3K, 3L, 3M, 3N, 3O, 3P, 3Q, 3R, 3S, 3T, 3U, 3V, 3W, 3X, 3Y, 3Z, 4A, 4B, 4C, 4D, 4E, 4F, 4G, 4H, 4I, 4J, 4K, 4L, 4M, 4N, 4O, 4P, 4Q, 4R, 4S, 4T, 4U, 4V, 4W, 4X, 4Y, 4Z, 5A, 5B, 5C, 5D, 5E, 5F, 5G, 5H, 5I, 5J, 5K, 5L, 5M, 5N, 5O, 5P, 5Q, 5R, 5S, 5T, 5U, 5V, 5W, 5X, 5Y, 5Z, 6A, 6B, 6C, 6D, 6E, 6F, 6G, 6H, 6I, 6J, 6K, 6L, 6M, 6N, 6O, 6P, 6Q, 6R, 6S, 6T, 6U, 6V, 6W, 6X, 6Y, 6Z, 7A, 7B, 7C, 7D, 7E, 7F, 7G, 7H, 7I, 7J, 7K, 7L, 7M, 7N, 7O, 7P, 7Q, 7R, 7S, 7T, 7U, 7V, 7W, 7X, 7Y, 7Z, 8A, 8B, 8C, 8D, 8E, 8F, 8G, 8H, 8I, 8J, 8K, 8L, 8M, 8N, 8O, 8P, 8Q, 8R, 8S, 8T, 8U, 8V, 8W, 8X, 8Y, 8Z, 9A, 9B, 9C, 9D, 9E, 9F, 9G, 9H, 9I, 9J, 9K, 9L, 9M, 9N, 9O, 9P, 9Q, 9R, 9S, 9T, 9U, 9V, 9W, 9X, 9Y, 9Z, 10A, 10B, 10C, 10D, 10E, 10F, 10G, 10H, 10I, 10J, 10K, 10L, 10M, 10N, 10O, 10P, 10Q, 10R, 10S, 10T, 10U, 10V, 10W, 10X, 10Y, 10Z, 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LOOK FOR THE SILVER-GREY TRANSFORMER

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of the notes Doc. Let me shoot at him unmercifully, and came back for more without a grumble. And after this pre-arranged battle that always took place, was so real at times, that even my best friends were taking sides. One thing more, for the love of Mike, Hamad, don't hold that "Pencil" against me! It was all part of the act, although at times even I had my doubts! 73 and hope CUL. Don't forget to give my successor, Jack, 74, all the good wishes you can give. Good work, even if he does not always agree with me!!

TASMANIA

The general meeting for August was held at the usual time, 7 PM. In the absence of TFF, Despite a most wintry night, there was a good roll-up of members, and Mark Hurburg's lecture on "Intra Red Rays and their Detection" was greatly appreciated by all. The lecture was tape recorded by Barney Watson.

Len TLX advised that the Noise Investigation Committee is meeting with some success in its efforts and a source of troublesome noise in the TRK locality was rapidly located. Good work, Cape Lee.

I am pleased to be able to advise that the 3 mx band is receiving quite a bit of patronage again, and the following news is what I have managed to hear. There are 144 MX activities. Athol 1AJ is replacing his 7 Mc. mobile gear with 3 m equipment, and has the job well done. He is also changing over soon to an 82B in the final, although I understand that he is already putting quite a good signal into the Hobart area. Correct me if I am wrong! Also I believe you have developed a fairly efficient dummy antenna, consisting of a mighty length of co-ax running to an array on a nearby hill. Never mind, Alan we can't win all the time, can we?

1AJ also is now active on two and is now doing well after a spot of trouble with a faulty 30B in the meter. Dave 144 MX is probably being asked soon on this band and is at the moment putting the finishing touches to the shack. I believe that Dave contemplated putting the 3 m mobile gear on a truck. I wish the agents will soon have a network all your very own. It will be a "Good Year" then won't it? Oh, yes—I know. 144 MX is also active and I hope soon to add myself to the list again, so taken all round things look really bright. The Waikato Club has recently informally approached the Institute with a view to the establishment of a radio communication system for their forthcoming Antarctic expedition. The necessary requirements are a base station and three out-stations, probably operating on 30 Mc.

CORRESPONDENCE

The opinions expressed in these letters are the individual opinions of the writer, and do not necessarily coincide with those of the publishers.

LIMITED LICENSE

Editor "A.R." Dear Sir,
The vigorous controversy on the non-limitation of license to full membership of the W.I.A., Western Australian Division, started by my esteemed friend, Tom Mulder, VK6MK, is getting all out of hand and a series of wise statements and a little wisdom did not prevail by the Cinderella Society's Council and the whole matter settled amicably instead of a tangle of dirty linen being washed in the press.

Many years ago, a similar controversy in the Radio Society of Great Britain started with the restriction of receiving members from transmitting members. It became so heated, a break-away movement was started and only now, after almost a decade, has the matter prevailed and a united front for Amateur Radio been presented.

The same story will be repeated in Western Australia unless the Council there does not act quickly and settle its own disputes in its own territory without telling these troubles to all Australia. The trouble is that the same kind of trade union strikes. Unless they are settled very quickly, they are like a cancerous growth—they spread rapidly, do a lot of harm, spread fear and no one can stop them.

As I see this dispute, it revolves into two clear cut issues:

- (a) Whether limited licensees should be denied all membership until they have proved to the P.M.G. Department they can qualify for the full A.O.C.P.; or
- (b) Whether they should be denied their green light with full membership irrespective of their qualifications.

ating in the 7 Mc. band, and it is hoped that when further information is to hand we can accommodate this in this matter.

Ere this appears in print, another R.D. Contest will have come and gone. Len TLX has been doing some research into contest facts and figures, and has found that participation is definitely falling off. Also, that every Amateur not taking part costs approx. 8 points. I wish could be increased to 10 points, but I doubt, but there it is in shape, for future reference.

Joe TBJ and Ted TFF have now completely sold themselves on xtal converters for the lower bands. Joe also has a soft spot for the 7 Mc. for multi-band hand circuits. Mark TDM and associate Johnny Grace are both delving into the intricacies of P.E. circuitry.

Members are once more advised to use their full call signs at all times, in accordance with Regulations. I know it's easy to shorten a call sign, particularly when in a hurry, but we must abide by what is laid down in this matter.

And now to close with a few short random jottings. TMY was prevented from attending a recent meeting due to an unexpected arrival in the family. Moo-cow of a trick to have played on you Alan. Associate Vance Toberman still languishing on Flinders Island, will have to get the ticked Vanuatu ticket, buying up 58BA's so look out, 144 Mc. TKA, TDW, TCC heard active on 40 mx. TRM's sink interfering with his QSO—I had to give that one a plug TWD. TWD's mobile gear is still running in an excellent local roll-call on 7 Mc.

NORTHERN ZONE

When this issue has been distributed, our old stalwart, TCW, will have moved his QTH to Colac, VK1. Chris has been very energetic in all club activities, especially arranging talks and his 144 Mc. mobile gear is doing the best of happiness in VK3 land. TLX has now joined forces with TFF and they have been fitting around in the 7 Mc. band. TWD now has a 5 m converter ready for next January. A visitor to this State is our Federal Traffic Officer. HTL, who is doing tests on a new 144 Mc. 10T HT, which goes to Flinders Island.

A couple of Sundays ago we worked the official TWI station in Hobart. Nice to hear you from time to time. I also like to hear you always listen for you when at home. Saw Harry Milling, our N.L. in town recently with a new full of QSL cards, that he was anxious to distribute. Bobbie, the letter VK2AA, the official station!

NORTH WESTERN ZONE

Amateur operations of the zone have been quiet the last couple of months with periodic openings in the DX bands and some good results.

I, unlike other correspondents, do not wish to take sides. I note there have not been facts. Even now after three months of this literary battle, I can see all kinds of side issues being brought into the controversy which I feel cannot go without some observations.

VK6SR's big boost for experimenters holding them, as he infers through his writing, to be the epitome of Amateur Radio has little substance actually. I think it is true that amateurs may have had some bearing a generation ago. Apart from personal satisfaction and a little income, the only reason for holding a license amounts to exactly all today that's not already known.

This correspondent (VK6OR), through his remarks in the "Radio value" column, has been hamperer now lies from 144 Mc. and Hamer," endeavours to make the subtle reference that in these equivalent to him and his colleagues are really doing something for the electronic art. I'll venture to say there's nothing being done through Amateur Radio in this country that is not being done in the amateur bands known. In the last few years I've had a chance to see much of v.h.f. in the commercial field of the Western Australian, with its electronic systems; West Australian, from Laid, with its seismographic surveys, and the Department of Civil Aviation. The stage reached in this field is such that it is the scope of an Amateur Radio experimenter.

Amateur Radio today has two main roles. Its service to the community, as shown so admirably by the N.W.Z. DX campaign, which has been a success, and in providing international goodwill and understanding to a troubled world through its DX channels. The days of the experimenter are gone, or at least they are. I think it is something to the community in return for his great hobby, it is to the above two points: to encourage service and to provide a good through DX that he must devote his time and energy.

—ROTH JONES, VK6BG.

ports being gained, mainly on e.w. operation. The chief c.w. operators are TUV and TWA, the latter having just completed a new all-band v.t.o.-exciter combination with an excitation of about 35 watts input. This is being used as a rig until the new final is completed.

Amateur Hamad was seen recently viewing some 1935 vintage autodynes with four 81 stages and each stage enclosed in aluminium cans and all mounted on a thick aluminium chassis. He has been studying Loran and obtaining many varied patterns on the indicator, that dip is certainly hard to keep on the pedestal!

PAPUA—NEW GUINEA

The month of July, the 17th to be exact, at 1000 hours, marked the beginning of VK6WI as the official station of the VKS Division. The Assistant Administrator for the Territory, Mr. R. Wilson, performed the opening ceremony. His opening speech paid tribute to the work of Amateurs in filling the breach during emergencies. Particularly in N.W.Z. where he said: "Amateurs have helped in no small way in putting Amateur Radio in the public eye. He wished the W.I.A. every success in the future and that the W.I.A. should be able to participate in the Birthday Honours. These congratulations are heartily endorsed by all VKS collectors. The W.I.A. has been elected as the VKS Division President, Frank 6FN, apologised for the non-arrival of the Federal President's address, which was put on tape for the occasion, and failed to reach Port Moresby before the opening date.

We then listened to an address by our own President, 6FN, and his Vice President, 6G, who take its place in the scheme of things and will be heard every Sunday on 3.0, 7.14 and 144 Mc. with the VKS Division news. Slow more practice is also broadcast by VK6WI on 3500 Kc. every Friday night and frequency checks will be available whenever VK6WI takes the air. In passing we should mention that Frank on his untiring efforts on behalf of our Division, and we are extremely fortunate indeed to have at the helm such an untiring member, who seems to be able to summon ideas which no doubt would be a deterrent to others less enthusiastic. Congrats Frank and thanks.

From Port Moresby we hear that a lively and active group of amateurs is now making appeals to all interested to contact them regarding skeds. etc. Some of the v.h.f. group are Frank 6FN, Doug 6DB and others, but imagine if anyone should come along with good arrangements could be made for tests and skeds.

We hear from Wau that the Wau Amateur Radio Club is now the holder of the call sign 6W. The club is now active on 144 Mc. and to his first CQ call on the air raised an 7MS in Martinique. The lads over there are getting very interested now, building their own one-tube learning more code, and of course getting the feel of the microphone.

6UF is at present in Port Moresby awaiting clearance to Dougan. Dougan is now active if still in Port Moresby. From Gland we hear Charlie 6WG has been extremely ill. On the mend now and expects to be leaving England in September. We wish him a speedy recovery and a safe trip home. Bob 6BS is all set to put Cubicle Quads on 20, 15 and 10 mc, but completely out of the picture. We wish him a speedy recovery and a safe trip home. Bill 6BW wonders whether the AJK been described in "A.R." for June, 1955, ever saw the light of day or was it just one of the jumble of letters that, according to directions, it looked f.b. on the ground; comes the time to raise it in the air, and "wice in me" would put a double jointed jelly fish to shame.

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